Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

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PATHOLOGY OF IONIZING RADIATION

BRIG. GENERAL ELBERT DE COURSEY, MC, USA
Washington, D. C.

THE DETONATION of an atomic bomb produces rays that cover the entire length of the spectrum. The intensity of the thermal radiation was so great in Nagasaki that there were flash burns on such diverse substances as wood, oranges, tile, and textiles. Thin objects such as leaves, blades of grass, and clothing acted as filters, offering protection in their shadows. This circumstance influenced the distribution and severity of burns sustained by the inhabitants of this city.

Ionizing radiation, the agent which makes the atomic bomb unique among all other weapons, also contributed to the morbidity and mortality among the population. Thousands of persons received radiation, but because of varying distances from the source and shielding of all different kinds, the amount varied from minimal to several times the lethal dose. The radiation was immediate and lasted for only a very few minutes.

The content of this paper represents the work of many investigators, American and Japanese. Tissues from those who died from the effects of atomic bombing before late September, 1945, were collected by the Japanese before we arrived. Many physicians in the Armed Forces participated in the collection of clinical material, and pathologic investigation was carried out by Dr. Liebow of Yale at Hiroshima and Captain Shields Warren and me, Navy and Army, who worked together at Nagasaki.[1] Most of the gross descriptions of early cases are the work of Japanese pathologists, but preserved organs and tissues for histologic studies were available to us. We performed autopsies after our arrival.

In reviewing what is known of the effects of radiation on the systems of the body the relationship of lesions to time of death must be considered. In patients dying during the first two weeks after exposure, there is histologic evidence of radiation effects in the bone marrow, gonads, gastrointestinal tract, and skin, which, however, are not manifested clinically. In the groups dying from the third to sixth weeks, bone marrow changes predominate and neutropenic ulcerations and hemorrhagic symptoms are spectacular. General nutrition declines. Gross changes are at about their peak. In those dying in the third and fourth months, beginning recovery in bone marrow and regeneration of hair are apparent, but testicular and connective tissue changes persist. There is increased emaciation. Malnutrition, however, is not based entirely on shortages of food; intestinal lesions and other factors are largely responsible.

Bone Marrow

The cellular picture of irradiated bone marrow is tremendously changed during the first week after the bomb explosion. There is almost total depletion of blood-forming elements, with the exception of small islands of erythropoiesis. By the end of the week reticulum begins to proliferate and at first differentiates into lymphocytes and plasma cells rather than myeloid cells. These forms predominate until the fourth week when myeloid differentiation is seen. The bone marrow of most of those dying before six weeks is hypoplastic; but in a few, islands of hyperplasia with arrest of maturation are observed. Most of the fatal cases of the third and fourth months show hyperplasia, which in the femur is grossly evident

as pink marrow extending through a third or half of the shaft; in these the maturation defect decreases and more neutrophils are found in the peripheral blood and in infected tissues. In a few of the cases of longer duration, however, aplasia is prominent, with the marrow of the femur pink and gelatinous. Some marrows which grossly appear hyperplastic are really hypoplastic, the pink color coming from dilated blood vessels. Whatever the marrow picture, there is usually profound leukopenia at some time in fatal cases.

Lymph Nodes

The high degree of sensitivity of lymphoid tissue to ionizing radiation results in tremendous atrophy seen as early as the third day. Lymphocytes almost disappear, leaving a lacy framework that is spectacular in microscopic preparations. Necrobiosis may account for changes in the germinal centers, but departure from the normal architecture is marked only when the germinal centers disappear as they did in three-fourths of those who died during the first two weeks. The gross appearance of human lymph nodes very soon after the blast is not known, but in bombed animals the nodes are somewhat enlarged, soft, and pale in color. The large atypical mononuclear cells which appear by the second week have been considered lymphoblasts by one observer, but could logically be pathologic forms whose sensitive nuclear chromatin was deformed by the radiation. The lymph nodes from Japanese patients dying about the fifth week are usually large and almost devoid of lymphocytes and germinal centers. Bizarre large cells are more numerous. Plasma cells, eosinophils, mast cells, and increased numbers of reticulum cells are present. In the fourth month lymphocytes are more numerous but are still reduced.

Spleen

The lymphoid elements in the spleen react to radiation as do those in the nodes. Early, the spleen is usually small, but an occasional one reacts very promptly by swelling. On section it is dark red and pulp adheres to the knife; the follicles are indistinct and the trabeculae are somewhat prominent. In addition to the near absence of lymphocytes, large mononuclears are increased and there are erythrophagocytosis and hemosiderin deposits. During the second month the spleen is small and organized follicles are absent. A syncytial reticulum seems to surround the regenerating follicles in which the slight lymphocytic content of the organ is obvious. Atypical large mononuclears are found in about 25 per cent of the material examined. Through the fourth month there is still moderate atrophy; occasional germinal centers appear and the lymphocytic content shows some evidence of recovery.

Secondary Effects of Radiation on Reticulo-Endothelial Descendants

Hemorrhagic lesions and leukopenic necrosis represent the principal effects on the irradiated body about the end of the first month. Leukopenia was extreme in affected Japanese.[2] The pharynx and its connections, the gastrointestinal tract, the respiratory organs and the skin manifest both changes. In addition, petechiae, purpuric patches, or large ecchymoses are seen in other soft tissues, particularly the urinary tract, mesothelial linings, and muscles. These changes are outstanding clinically, and their severity depends on the location of the larger hemorrhagic lesions. Hemorrhages in the linings of the pharyngeal regions, the bowel, or the urinary tract give signs externally. Hemorrhages breaking through epithelium of bacteria-laden surfaces often initiate neutropenic necrotizing lesions, which in the pharynx are similar to the well-known acute agranulocytosis. Ulcers sometimes extend onto the tongue, the gums, buccal membranes, lips, and even the skin, to give the picture of noma. Such ulceration may also be independent of hemorrhage. It is probable that ordinarily nonpathogenic bacteria may cause serious consequences after sufficient reticulo-endothelial reserves are lost. Most ulcerative lesions throughout the stomach and intestinal tract are on a similar basis.

Lungs

Only the slight edema, perivascular or pleural, that appears in the lungs in the first two weeks might be a primary radiation effect. Hemorrhagic and necrotizing pneumonia are common after the first few weeks as secondary lesions, and are probably part of the process which results in ulcerative lesions of the gastrointestinal tract.

Gastrointestinal Tract

This tract is among the first in which lesions are grossly visible. Even before hemorrhagic

manifestations, the ileum or cecum, particularly, may present focal changes characterized by swelling, greenish and yellowish-grey coloration, and induration of the mucosa. These foci may become confluent and widespread, with a diphtheritic membranous effect and much submucosal edema. Later, mucosal hemorrhage may initiate another cycle of similiar change in the stomach or intestine, beginning with ulceration of the mucosa at the site of the hemorrhage and progressing to an ulcerative or pseudomembranous process. In the small intestines initially only the tips of the folds may be involved, giving the appearance of having been dipped into boiling water; later, they become greenish or yellowish-grey.

Again in the third and fourth months, enteritis, most often in the large intestine but sometimes affecting also the small intestine or occasionally the stomach, may be the most prominent lesion at autopsy. The large intestine at this stage is usually the seat of a widespread process that may extend from the ileocecal valve to the rectum, the involvement being most prominent in the distal portion. Thickening of the wall is a feature. A diphtheritic membrane and ulceration are sometimes present to give a pathologic picture resembling that of bacillary dysentery. It would seem that the process represents not only changes due to irradiation of the sensitive intestine, but also those resulting from decreased resistance to omnipresent intestinal microörganisms and, probably more important, lowered antibiotic capabilities of the blood.

Microscopically, the epithelium early contains extremely bizarre cells with giant hyperchromatic nuclei and multipolar mitoses. The swelling is seen to be caused by edema, and the peculiar coloration by the absence of infiltrating leukocytes. In the late stages prominent features are areas of mucosal ulceration with much fibrinous exudate, few leukocytes, and in the remarkably edematous submucosa a considerable number of histiocytes, a few lymphocytes, and occasional eosinophils. Plasma cells of the lamina propria remain numerous.

Testes

The testes show intense changes in almost every instance. As early as the fourth day when the parenchyma has a normal appearance grossly, the histologic sections exhibit remarkable evidence of damage to the germinal epithelium, numerous cells of which are necrotic and free in the tubules, some having been carried into the rete testis. The number of mitoses is small. Sertoli cells begin to increase in number. Mature spermatozoa are found even in later specimens where spermatogenesis has ceased. Apparently uninjured spermatozoa appear in the seminal vesicles.

During the second month gross examination reveals little. Histologically, a few necrotic germ cells remain, but most have disappeared, and phagocytic or infiltrating inflammatory cell activity is absent. A few bizarre cells approximating the basal membrane appear to be spermatogonia. Sertoli cells are more numerous. The tubules now begin to shrink, and at this time the interstitial cells of Leydig are so prominent that some interpreters regard them as hyperplastic. The most extreme vascular change in any part of the body is seen in some of the small interstitial vessels; beneath the distinct thin endothelium is an eccentrically located mass of eosinophilic homogeneous refractile material that may almost occlude the lumen. This change, difficult to ascribe to radiation, is often best seen near the tunica albuginea and apparently persists, for it is present in autopsy material from the third and fourth months. At that time the interstitial tissue is somewhat less prominent; the basement membranes are thick, wavy, and acellular; the tubules, now more atrophic, are often hyalinized. Elsewhere Sertoli cells have replaced the germ cells, which have become rare. Before attributing these changes entirely to radiation, one must give consideration to the poor state of nourishment during the third and fourth months. In this connection, similar testicular changes have been described in autopsy material from victims of the Dachau prison camp.

Pituitary

Large basophilic cells with much cytoplasmic vacuolation appeared in the pituitary gland of 25 per cent of the males dying during the third to sixth weeks. Because cells of this type are found in mammals after castration, they are known as "castration cells." In the second and third months large basophils are found, only a few being vacuolated.

Ovaries

Changes in the ovaries are much less striking than in the testes. Gross changes, except as part

of the hemorrhagic phenomena, are absent. Histologically, primary ova are usually present, and only occasional specimens have a few atretic primary follicles. Developing follicles are seldom found. A "resting phase" of the endometrium reflects the ovarian picture. Clinical observation in Nagasaki indicated that amenorrhea was definitely increased and that the rate of premature termination of pregnancy among women within a 1500-yard radius of the explosion was significantly higher than normal.

Skin

The quickly visible changes in Japanese exposed to an atomic bomb were the pigmented areas that appeared in the first few weeks and persisted. These had such sharply demarcated outlines that they were considered flash burns. Development of what is usually recognized as ionizing ray skin burn was not seen. In a few early cases there was said to be bullous edema that may have been caused by gamma rays.

Epilation appeared on the scalp, occasionally being more severe on one side than the other. Axillary epilation was an accompaniment in 16 per cent, pubic in 12 per cent, and eyebrow in 8 per cent.

Microscopically, the hair follicles show distinct changes both in the epidermic and dermic coats. Early specimens were not obtained, but in those of the fourth week the internal root sheaths cannot be identified, the external sheath (continuous with the malpighian layer of the epiderm) being continuous with the hair shaft. Vascularity of the papillae is reduced and the adjacent epithelium is atrophic. Pigment is irregularly clumped. Then in the dermic coat, both the inner hyaline membrane and the cellular fibrous layer become thickened. The base of the follicle apparently undergoes continuous shrinkage, pushing the base of the hair toward the surface, until regeneration begins with new cells over the papillae. This process mimics normal hair replacement. There is also atrophy of the sebaceous glands in some cases. Some of the sweat glands are small, their cells occasionally vacuolated and pyknotic, and the basal membranes thickened.

Evidence of radiation effect on the epidermis is not definite. Third degree flash burns could be expected to include some radiation effect, but interpretation is difficult. In patients dying on the fifth day, there is necrosis of vessel walls and thrombosis. Hyperpigmentation in basal cells and chromatophores are common at the edge of burn areas. Some thinning of epidermis, hyperkeratosis, ironing out of papillae, and hyperpigmentation of basal cells are found in the scalp (the most usual specimen). Erythema or pigmentation from ionizing radiation has not been recognized in the Japanese.

Adrenal

During the first two weeks there seems to be a loss of lipoid in the adrenal cortex, but during the next months it progressively loses its orange-yellow color and is distinctly thin. Microscopically, most cells are granular rather than foamy and atrophy is most marked in the outer zona glomerulosa (contrary to what was expected). When foam cells are present, they are usually in the inner layer. The medulla is normal.

Liver

Doctor Ono, Professor of Pathology at Fukuoka, was impressed with the large nuclei of liver cells around the central veins and the congestive edema in that region; however the presence of any irradiation effects is a moot point.

Urinary Tract

Except for hemorrhagic manifestations there are no apparent lesions. In the bladder during the hemorrhagic stage of the radiation disease, mucosal hemorrhages may result in necrotizing ulceration without evidence of leukocytic infiltration. The prostate and seminal vesicles are not remarkable except for a rare neutropenic necrosis and the presence of a few morphologically normal spermatozoa.

Brain

Only secondary hemorrhagic and necrotic changes are found in the brain.

Comment

The effects of the atomic bomb on human beings are on the basis of trauma from flying debris, thermal radiation and ionizing radiation. The ionizing radiation effects of the bomb comprise a small part of the total injuries; the changes produced are widely varied, depending on distance from the explosion and amount and character of shielding.

Clinically and pathologically the patients affected by radiation were easily separated into four

(Continued on Page 318)

MEDICAL ASPECTS OF ATOMIC WARFARE

As Related to Civilian Defense

JOSEPH M. RYAN, M.D.
Saint Paul, Minnesota

WITH the sudden and dramatic end of World War II in August, 1945, several new words were added to our everyday vocabulary. The words, "radiation," "radioactivity," "neutron," "fission," et cetera, have cast a spell of fear over us. A fear of the unknown tends to make us hide our heads in the sand and avoid the reality of the true nature of the problem at hand. The problem before us now is to obtain a knowledge of the medical effects of atomic warfare. The term "radiation" has been stressed so much that more important but less fearful effects are neglected. It is important that we know of the blast and burn casualties that can be expected if a community were subjected to the same force expended over Hiroshima and Nagasaki. As physicians, we must be aware of these facts; we must realize that those who are casualties of war need not be hopelessly injured and that we have at hand methods of caring for them. This paper is presented at a time when Civilian Defense is an extremely important problem. No physician should consider himself unimportant in civilian defense because of his location, either rural or urban, for if a large urban community were subjected to atomic bombing, help in caring for its casualties would necessarily be given in part by the doctors of the surrounding areas.

Radiation associated with the explosion of an atomic bomb includes two major types: (a) Thermal and (b) Nuclear. Because of its importance and the large number of casualties resulting from it, we shall consider thermal radiation first. Approximately 95 per cent of all burns were produced by this effect.

Thermal radiation is that which is emitted from hot materials within the exploding bomb. Within 0.1 millisecond after detonation, the ball of fire has a temperature so high that radiation occurs. This consists of ultra-violet, visible, and infra-red radiations when it reaches the earth. Part of these rays are reflected and part are absorbed. The portion that is absorbed is of importance to us. The extent of the amount absorbed depends upon the nature of the matter and its color. Black cloth absorbs much more than that of a lighter color. The absorption may be so great that the material will burst into flames and produce a flame burn to the individual wearing the clothing. It was noted at Hiroshima and Nagasaki that white clothing afforded more protection to "flash" radiation than did darker clothing. The burns produced by this type of radiation caused pigmentation, depigmentation, vesiculation, erythema, and full thickness skin loss, depending upon the distance from point O. Burns were of little significance beyond 3,000 meters. Five per cent of all burns resulted from flame or secondary fires. Here, again, all degrees of burn casualties were found at Hiroshima and Nagasaki.

Nuclear radiation is of less importance, as far as casualties are concerned, than thermal. It is estimated that such casualties made up only 15 to 30 per cent of the total number at Hiroshima and Nagasaki. When an atomic bomb explodes, it emits nuclear radiations consisting of gamma rays, neutrons, beta particles, and a small portion of alpha particles. It is not necessary to discusss the action of these radiations except to say that gamma rays and neutrons have considerable penetrating power and can produce harmful effects on living organisms. Likely, there is little effect from this type of radiation beyond one mile from O.

The medical aspect of nuclear radiation injury and its therapeutics is indeed wanting. We have no specific measures to be carried out, but we know that those who survive the second week have a good chance of recovery. It is in this group that we can do the most good. Antibiotics, blood, plasma, vitamins, electrolytes, "doca," and sedatives are useful in treating patients in this category.

Mechanical injuries resulting from an air-burst atomic bomb were somewhat different from the effect of the conventional bombing of London

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Presented before the Clay-Becker Medical Society, Moorhead, Minnesota, on December 1, 1950.

Dr. Ryan is Chairman of the Ramsey County Medical Society Committee on Civilian Defense. He was formerly Chief of Medicine for the Manhattan District at Oak Ridge, Tennessee, 1943-1946.

when one considers the direct blast effect. In London, there was much visceral damage, while in the Japanese cities there was very little or none. Autopsies on the early cases showed no typical blast damage to the lungs. It has been suggested that this difference can be explained by the trip hammer blow produced by the conventional "block buster."

The indirect effect of blast produced tremendous bodily damage. Falling buildings, flying glass and debris caused fractures, contusions, and lacerations. These injuries were the same as we would expect following a tornado, cyclone, earthquake, or any such catastrophe. The treatment would necessarily be the same, as there is nothing characteristic of injuries produced by the indirect blast effect of an atomic bomb.

We should expect to find many individuals who have had severe crushing injuries such as were found in the bombing of London in 1940. The "Crush Syndrome" associated with "Lower Nephron Nephrosis" was prevalent at that time and can be expected to be present in large numbers if an American city were bombed either with a conventional or an atomic bomb. The amount of blood, plasma, and antibiotics that would be required to treat casualties is so tremendous that obtaining these seems an impossible problem. However, in the event this country is bombed in the near or distant future, we must all be prepared to do our utmost in meeting all of the situations mentioned in this paper. We should not let the thought of nuclear radiation hynotize us and thus prevent sensible and rational planning for medical civilian defense. We must anticipate the mechanical and burn injuries and not lose sight of the fact that they constitute by far the greater number of casualties.

Conclusions

1. As physicians, we must take an active part in civilian defense.
2. Nuclear radiation caused only 15 to 30 per cent of the casualties at Hiroshima and Nagasaki.
3. Burns and crushing injuries must have a high priority in planning civilian defense.

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PATHOLOGY OF IONIZING RADIATION

(Continued from Page 316)

distinct categories of disease (very severe, severe, moderate, mild) with close relation between severity and time and incidence of mortality. The outstanding symptoms were nausea and vomiting on the day of the bombing, followed soon by fever, leukopenia, diarrhea, and after two weeks, epilation, purpura, and oropharyngeal lesions.

Summary

The lymphoid and hematopoietic tissues, skin, genital organs, and gastrointestinal tract were most severely affected by ionizing radiation. There was atrophy of lymphoid elements in lymph nodes, tonsils, spleen, and gastrointestinal tract. Atrophy of the bone marrow was evident early, and it either continued or was followed by focal or diffuse hyperplasia with maturation arrest. Necrotizing inflammation of the oropharynx was prominent but limited to the third to sixth weeks. The scalp showed the surest external gross sign of ionization—alopecia, which, with hemorrhagic manifestations, appeared about the same time as the throat lesions.

The testes showed prominent microscopic changes, with almost every sex cell destroyed in all men who died. The ovaries showed very little more than extreme scarcity of proliferating follicles. In all time periods the intestinal mucosa was the seat of changes which varied from ulcerated hemorrhagic foci to focal or widespread necrosis and ulceration with formation of diphtheritic membranes.

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UNUSUAL PYODERMAS (HIDROSADENITIS SUPPURATIVA, ACNE CONGLOBATA, DISSECTING CELLULITIS OF THE SCALP)

A Review

ROBERT R. KIERLAND, M.D.
Rochester, Minnesota

THE three unusual pyodermas under consideration, namely, hidrosadenitis suppurativa, acne conglobata, and dissecting cellulitis of the scalp, have many features in common; in fact, they frequently coexist and because of this merit consideration as a group rather than as single distinct entities.

These pyodermas are uncommon, protracted in their course, produce much discomfort and disability to those afflicted, are resistant to conservative therapeutic measures, produce severe scarring and are of unknown etiology. Men are afflicted more frequently than women, and the age distribution of greatest pyodermic activity is during the active sexual career, that is, the second through the fifth decades of life. In spite of these facts there have been few reports about these conditions since the original and subsequent articles on acne conglobata by Reitmann, Michelson and Allen and Belote; on hidrosadenitis suppurativa by Verneuil, Lane and Brunsting, and on dissecting cellulitis of the scalp by Hoffmann, Wise and Parkhurst and Barney. Nevertheless, the transactions of the various dermatologic societies report a number of these unfortunate cases and stress the difficulty of treatment together with the usual philosophical statements based on lack of knowledge. Unfortunately, I have no greater knowledge of the basic physicochemical factors necessary in the production of these unusual pyodermas. What I shall say then is a composite of opinions from the literature, from informal discussions and from personal experience in the treatment of patients who have these disorders.

Clinical Characteristics

Hidrosadenitis suppurativa is a chronic, indolent, suppurative, inflammatory disease involving the skin, subcutaneous tissues and apocrine glands with sites of predilection for the perianal, genital, inguinal and axillary areas, which in its progress produces abscesses, sinuses and ulceration (Figs. 1 and 2). The primary lesion is a deep-seated, tender nodule which either resolves spontaneously in a matter of weeks or progresses to abscess formation with subsequent drainage (Fig. 1*a*). The suppuration may persist with development of new nodules or extension of the process in the subcutaneous tissues. As a result linear inflammatory cords (Fig. 1*b*), multiple sinus tracts and undermining, burrowing ulcerations may appear (Fig. 1*c*). The disease is subject to remissions and exacerbations and may persist for years. Secondary erysipelas or cellulitis with associated systemic symptoms is not uncommon; otherwise, serious systemic complications are few. Squamous-cell epithelioma rarely develops in regions of infection. Hidrosadenitis oftentimes follows a minor pyococcic infection of the fingers or hand.

Acne conglobata (Fig. 3) is also a chronic indolent inflammatory suppurative disease involving the skin and subcutaneous tissues although the primary inflammatory reaction is about the sebaceous apparatus rather than the apocrine glands and papulopustules result. Comedones are numerous, large, grouped and scattered over the body; the double comedo and comedo scar of Lang and Spitzer are considered characteristic of this condition. The inflammatory reaction begins as a follicular nodule in the center of which may be one or more comedones. The nodule increases in size, becomes purulent and later is covered by a crust underneath which is a deep ulcer. As peripheral extension proceeds, healing may appear centrally. As healing and activity go on together fusion of two or more plaques may result in a large serpiginous plaque characterized by infection, abscesses, communicating channels and sinuses, comedo scars and scarring. This condition may be found on the trunk, buttocks, thighs and arms. It is seen in conjunction with the other two unusual diseases of the skin under discussion and also acne keloid.

Dissecting cellulitis of the scalp, as its name implies, is confined to the scalp (Fig. 4), rarely

From the Section on Dermatology and Syphilology, Mayo Clinic, Rochester, Minnesota.

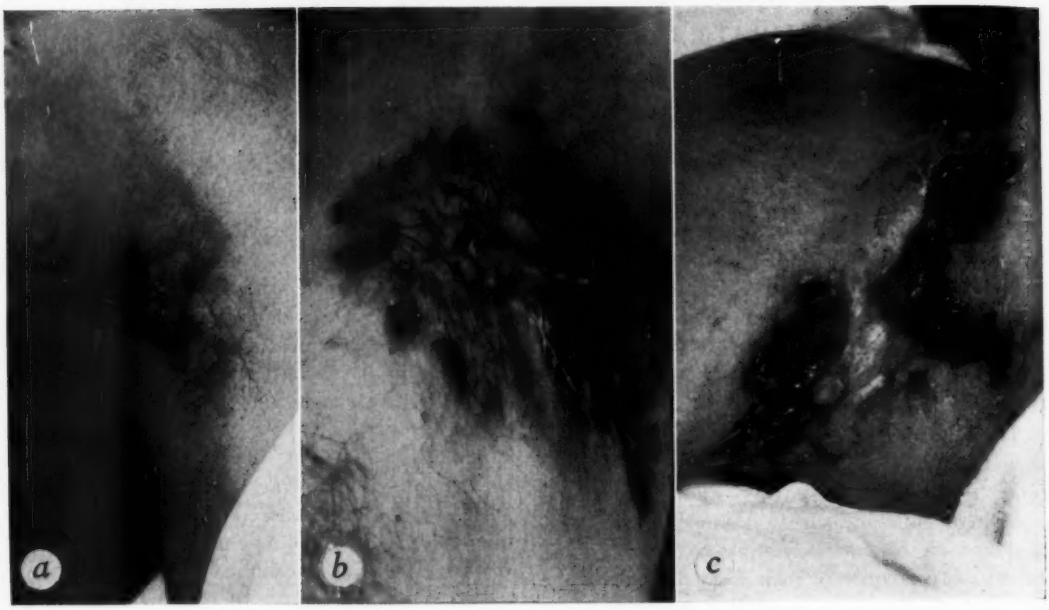

Fig. 1. Hidrosadenitis suppurativa: *(a)* early phase; *(b)* later phase with corded linear lesions and scarring; *(c)* late phase exhibiting extensive undermining ulceration.

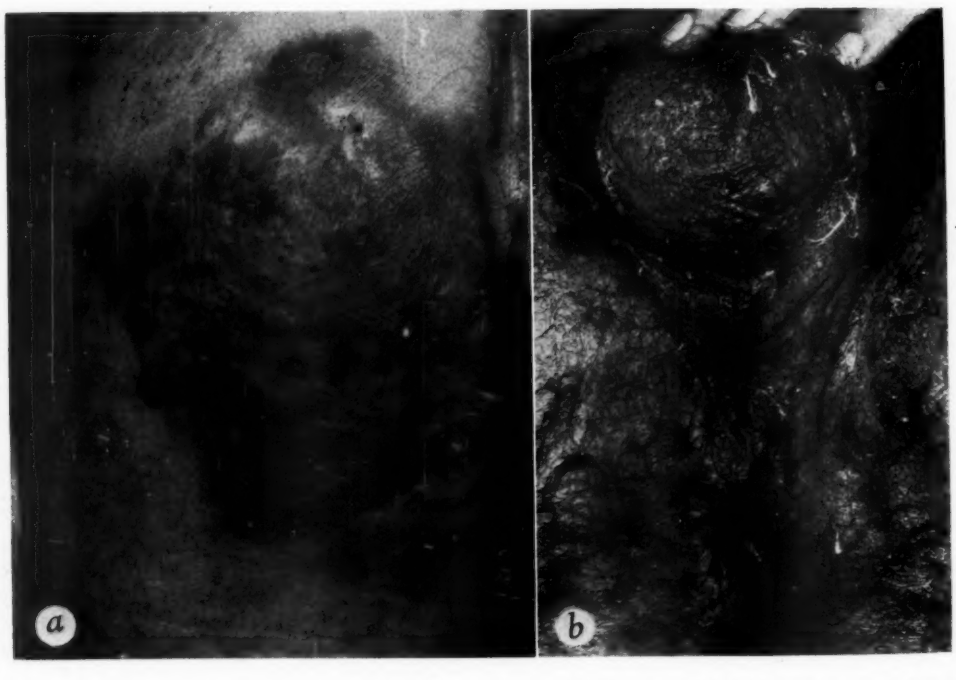

Fig. 2. Hidrosadenitis suppurativa: *(a)* of the buttocks; *(b)* of the crural folds, perineum and perianal tissues.

Fig. 3. Acne conglobata: *(a)* double comedones also concomitant acne vulgaris, acne deloid and hidrosadenitis (left axilla); *(b)* more widespread and extensive than in *a*.

spreads to the nuchal area and usually is found as the sole condition but occasionally occurs in combination with hidrosadenitis suppurativa and acne conglobata. As the ponderous Latin derived name, "perifolliculitis capitis abscedens et suffodiens," implies, the reaction is confined to the scalp and is composed of burrowing, undermining abscesses and follicular and perifollicular inflammation. The early lesion appears as a superficial or deep inflammatory nodule, from which the hairs may be extracted with but slight traction. The nodules enlarge and, as more appear, become connected with each other so that ultimately the vertex and occiput may be covered with a maze of intercommunicating sinus tracts. Pressure in one nodule will cause pus to escape from one or several other nodules and sinuses often at a distance of several inches. After eventual healing, which may require years, elevated nodules and ridges and atrophic scarring remain; the appearance is not unlike that of the convolutions of the brain. Comedones and superficial papulopustules are rarely found.

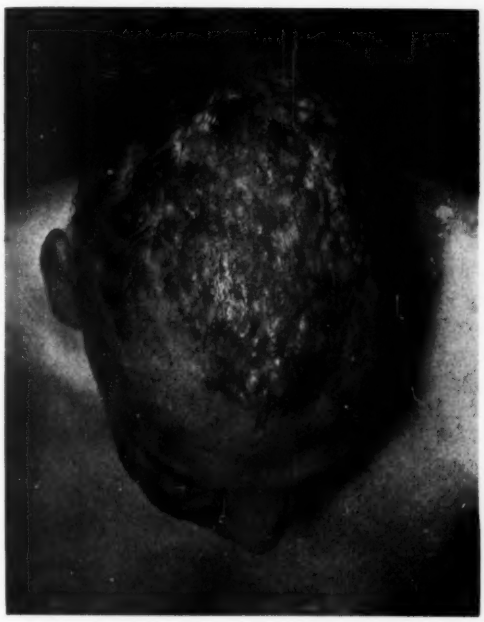

Fig. 4. Dissecting cellulitis of the scalp; linear undermining lesions and islands may be noted with normal growth of hair.

Differential Diagnosis

In typical cases the diagnosis of these uncommon three types of pyoderma is made without difficulty. In the early course, hidrosadenitis suppurativa must be distinguished from the more superficial pyococcic furuncle and carbuncle and occasionally from erysipelas, lymphadenitis and cellulitis. As the process becomes more extensive with the production of deep undermining sinuses and corded scarring, colliquative tuberculosis and the deep mycoses must be considered as well as the chronic, undermining, burrowing, nongangrenous ulcer that Meleny described in 1935.

Acne conglobata is recognized easily for the most part but cystic, indurative and cachectic acne may simulate the signs of acne conglobata; tuberculosis, syphilis and the deeper mycoses are to be ruled out by appropriate examinations on rare occasions but the characteristic comedo scar is seen only in acne conglobata. The indolent abscesses may suggest bromoderma or systemic blastomycosis.

Dissecting cellulitis of the scalp is a readily recognized condition when seen in its entirety and at the height of its activity. In the terminal phases, however, it should be distinguished from the scarring alopecias,[7] especially folliculitis decalvans and pseudo-pelade. Dissecting cellulitis of the scalp further may be separated from folliculitis keloidalis (acne keloid, dermatitis papillaris capillitii) but in this connection it should be noted that the two conditions may be found in the same patient together with hidrosadenitis and acne conglobata. All three conditions are quite distinct clinically from pyoderma faciale.[11]

Etiology

The cause of any of these pyodermas is unknown. Many theories have been advanced concerning the etiology but none are fully acceptable. Three determining factors appear which are as follows: (1) bacteriologic, (2) endocrine and (3) that most important and nebulous factor which may be defined as the "soil" of the patient or presence or absence of individual resistance.

Many bacterial organisms have been incriminated as specific causative agents in the production of these pyodermas. Yet not one of these has been proved to be the sole etiologic agent. Cultures have shown the predominant organism to be Micrococcus pyogenes, either albus or aureus. The work of Michelson and Allen and Belote on acne conglobata seems to indicate that while bacteriologically the organism is nonspecific the patient possesses an abnormal reactive capacity to such organisms. Brunsting also found no specific organism whereby the complete cause of hidrosadenitis could be explained.

In recent years the endocrine theory of etiology has found many proponents particularly in regard to the influence of androgens. While there is no doubt that such an androgenic influence exists, nevertheless this still does not explain the type of pyoderma to be produced or which is present in individual patients. The endocrine theory relates to a primary androgenic excess or to a disturbance of the androgen-estrogen ratio.

Why these three pyodermas together with others such as acne keloid and acne vulgaris may coexist in one case, or why in another hidrosadenitis may be the only cutaneous infection, and in a third only acne conglobata or dissecting cellulitis is found is not known. Part of the answer to these questions relates to the anatomy of the affected parts, that is, the loose areolar tissue of the scalp or the apocrine gland of the axillas and the anogenital areas. It is this final consideration which always leads back to the nebulous theory that it is the patient's resistance, background or "soil" that determines the capacity to react in certain specific instances. There are but few scientific facts known which help in the elucidation of this problem. Genetic factors have been implicated but have not been worked out well or completely.

Histopathology

The histopathology of these three pyodermas is essentially that of infection varying only as to the anatomy of the involved area.

Hidrosadenitis Suppurativa.[12,15]—The earliest infiltrate is seen within the lumen of the apocrine gland and in the adjacent periglandular tissues suggesting that the infection begins in the gland proper. The infection then spreads by way of the lymph spaces and channels which contain many leukocytes and sometimes clumps of cocci. In some sections there is relatively little periglandular inflammatory reaction and the infection is confined to within the gland while in others marked periglandular inflammation occurs. The infection spreads throughout the subcutaneous tissue and

the eccrine glands become involved from without. Later there is a perivascular infiltrate of plasma cells and lymphocytes. In the late stages remnants of the epithelial cells of the gland wall are found together with foreign-body giant cells. The epidermis and upper parts of the cutis are affected after extensive destruction of the subcutaneous tissue has occurred.

Acne Conglobata.[10]—The histopathology of acne conglobata varies to some degree with the age of the lesion. The epithelial changes are more uniform and consistent than those in the corium. The epidermis reveals marked hyperkeratosis without parakeratosis. The basal layer remains intact but the prickle cell layer is reduced to a single or double row of cells except where horny plugs are found—here the prickle cell and granular layers exhibit an increase. Cornified whorls going on to the formation of keratotic cysts are seen. Variously sized single and double comedones are present.

The infiltrate is primarily perifollicular in the corium and is composed of polymorphonuclear leukocytes, plasma cells and lymphocytes with a few giant cells. Abscess formation is found in some areas.

Scars show loss and destruction of elastic tissue, large comedones, moderate sclerosis of the corium and marked atrophy of the epidermis. The pathologic findings resemble those of acne vulgaris.[8]

Dissecting Cellulitis of the Scalp.[1]—The infection begins as folliculitis with destruction of the follicular wall. Subsequently there is severe perifolliculitis with purulent destruction of the deep part of the follicle and disintegration of the hair. The process then extends into the deeper layers of the scalp as cellulitis and the undermined, connected lesions present clinically are produced. The infiltrate is composed of lymphocytes and plasma cells in old lesions; polymorphonuclear leukocytes are present in areas of fluctuation and suppuration. Giant cells of the foreign-body type are frequent and contain remnants of hair either as small fragments or as clumps of brown pigment. The chronic inflammatory process progresses to a deep and extensive fibrosis with loss of elastic fibers. The absence of epidermal atrophy and the presence of hair follicles are prominent features and are somewhat surprising when the final keloidal appearance and fibrosis are considered.

Treatment

The treatment of hidrosadenitis suppurativa, acne conglobata and dissecting cellulitis is similar and consequently that of all three will be discussed together with remarks about measures which may pertain to any certain condition and not to the others. Treatment may be divided into general systemic and local. Local treatment may be conservative or radical.

Systemic treatment is directed toward the maintenance of the general health and well-being of the patient and toward the correction of metabolic faults. Dietary factors should be dealt with according to the experience of the patient. Persons who have hidrosadenitis and acne conglobata sometimes are inclined to obesity. They should reduce. If chocolate, nuts and rich pastries tend to increase the severity of the pyoderma, they should be excluded from the diet. For the most part, however, a diet rich in protein but moderate or low in fat and carbohydrates is given together with vitamin supplements. In addition to dietary instructions the patient is instructed concerning adequate exercise and rest.

Thyroid by mouth, 1 to 2 grains (0.065 to 0.13 gm.) daily, seems to have definite value for certain individuals. Estrogenic preparations, such as stilbestrol 0.1 to 0.2 mg. or premarin 0.625 mg. daily for three out of four weeks, may be given to the female patient as well as the male provided that strict observation is made for the development of untoward signs of estrogenic activity.

Antibiotics administered by mouth, intramuscularly, or even injected locally in and about abscesses or applied locally in the form of wet dressings or ointment are of definite benefit when there is much acute inflammation and when the process is of short duration; however, such treatment is of much less value when the process is a scarring one of long duration with only a few islands of infection in the midst of the scar. Then, too, antibiotics do not prevent reactivation of the pyoderma when the infection has been previously brought under control with antibiotics or other measures.

Local therapeutic measures, of course, are instituted at the same time as the general measures. The usual medication offered the patient with acne vulgaris is of little value to patients who

have these lesions because of the depth of the infective process under the epidermis.

Heat either in the form of infra-red light or a hot wet dressing of tap water or of a 1-in-16 dilution of Vleminckx's solution applied to sites of involvement is of help to the patient. This, together with incision and drainage of the fluctuant abscesses, may even cure a few patients early in the course, especially those with hidrosadenitis.

For patients who have extensive areas of skin affected as in acne conglobata and some with hidrosadenitis, sulfur baths according to the following formula may be given once daily or less often:

Sulfur precipitate	500.0
Sodium hyposulfate	120.0
Dilute sulfuric acid U.S.P.	250.0
Distilled water to make	4,000.0

Directions: Use ½ to 1 pint of formula in each bath. After the bath of twenty to thirty minutes' duration, pat dry, don't rub.

These patients may also be given suberythema doses of ultraviolet light, gradually increasing the duration of each exposure so that a tan results.

If comedones are present as in acne conglobata, they should be expressed. The loose hairs present in the affected sites of hidrosadenitis or dissecting cellulitis should be manually epilated. Recently I have been treating the oily cysts of acne conglobata with electrodesiccation[4,14] with success. This treatment may be applied to the more active inflammatory nodules as well and to the comedones themselves.

Roentgen therapy remains one of the best therapeutic measures available for hidrosadenitis. The earlier it is used the better the results, for when much scarring has occurred nothing will help except radical surgical excision. The roentgenologic factors used at the Mayo Clinic are: 130 kv., 6 ma., 5 mm. aluminum filter and target-skin distance, 16 inches. One hundred roentgens are given with the above factors twice a week for four to five exposures for acute hidrosadenitis. For subacute hidrosadenitis 150 r are given twice a week for four to five times, while for chronic lesions 150 r are given twice a week for three to four times. This treatment may be repeated in a month if necessary. Not all dermatologists use this technique by any means, but my colleagues and I consider that the advantages lie in the higher kilovoltage and filtration thus allowing the ray to penetrate into the basic lesion. Modifications of our technique may be used for dissecting cellulitis and acne conglobata.

With all that has been mentioned concerning treatment there are many patients who continue to have exacerbations of the pyoderma, who are in pain, and who are disabled. Radical surgical excision is indicated and provides the only cure for these patients and for those whose pyoderma is characterized by marked ulceration and by scarring with interspersed islands of infection. The areas of infection and scarring if possible are excised widely and deeply so that the surgical procedure carries into normal healthy tissue (Fig. 5*a* and *b*). A split skin graft may then be applied especially in areas where contractures are detrimental, or the wound may be covered by pinch grafts, or if the wound is not too large it may be allowed to epithelialize of its own accord without the aid of grafting. Macey[9] has discussed this subject as it pertains to axillary hidrosadenitis, and the same technique may be applied to other areas of the body. In certain areas, especially the anogenital region, the site of the excision is subject to infection and grafts do not take well (Fig. 5*c* and *d*); hence, here it is best that the wounds be as small as possible so that epithelialization may proceed with the least amount of difficulty. In the scalp the areas of excision should correspond to the convolutions of the infection so that the scalp may be covered with hair arising from the uninvolved sites.

Surgical procedures in multiple stages may be done as necessary as new areas become affected or in the event that the infected areas are too large or disseminated to be treated by a single procedure. On occasion a solitary plaque of infection and scarring as in acne conglobata may be too large to permit total excision at one time; for such a patient excision of various portions should be done as multiple procedures. It behooves the dermatologist to recognize the limits of his specialty. If satisfactory results are not obtained by conservative measures and if the dermatologist is not capable of performing the indicated surgery, the patient should be referred to a competent surgeon.

Summary and Conclusions

A brief review of the data on hidrosadenitis suppurativa, acne conglobata and dissecting cel-

Fig. 5. Hidrosadenitis suppurativa: *(a)* of left axilla before wide total excision and graft; *(b)* after excision and graft, same case as *(a)*; *(c)* prior to surgery in another case; *(d)* same case as *(c)* after excision and saucerization; wounds are clean and granulating.

lulitis of the scalp has been given. Emphasis has been placed on treatment and it has been stressed further that when the patient does not respond to conservative methods of therapy including roentgen rays, the patient should then undergo radical surgical excision of the areas of infection and scarring. These uncommon pyodermas are but similar expressions of the same basic pathologic change and disease.

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THE EFFECT OF VITAMIN K_1 ADMINISTERED ORALLY ON THE CONTROL OF THE COAGULATION DEFECT INDUCED BY DICUMAROL

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SINCE the introduction and widespread use of dicumarol as a valuable anticoagulant for the treatment and prophylaxis of thrombotic and thrombo-embolic disease there has been a need for a drug which would control rapidly the coagulation defect induced by dicumarol. The synthetic preparations having vitamin K activity, such as menadione (2-methyl-1,4-naphthoquinone), were first used. In early studies at the Mayo Clinic it was found that small doses of menadione were ineffective in most instances. In 1942, Overman, Stahmann and Link reported that menadione would inhibit the effect of dicumarol in rabbits. In 1943, Shapiro, Redish and Campbell found that large doses would give the same effect in man. In 1943 also, Davidson and MacDonald reported that the prothrombin time in three out of four patients who had received dicumarol was restored to normal soon after intravenous administration of large doses of vitamin K_1 oxide (one of the naturally occurring substances having vitamin K activity). Lehmann reported that hemorrhage after dicumarol was controlled by transfusions of blood and large doses of menadione by mouth.

In 1944, Cromer and one of us (Barker) reported studies on the intravenous administration of 64 mg. of menadione bisulfite to patients whose prothrombin times rose to levels indicating less than 10 per cent prothrombin activity following the use of dicumarol. It was found that eighteen hours after its administration the prothrombin time of thirty-five of the thirty-seven patients tested decreased significantly.

Davidson, MacDonald and Freed, and Lucia and Aggeler also reported on the successful treatment of the coagulation defect produced by dicumarol with intravenous administration of vitamin K_1 oxide.

Recently there has been a renewal of interest in the use of vitamin K_1 oxide. James, Bennett, Scheinberg and Butler found in a careful study that the prothrombin activity which had been depressed by dicumarol rose to levels above 30 per cent in twenty-six patients given vitamin K_1 oxide intravenously. It took an average of thirteen hours from the time of administration to obtain this effect.

Miller, Harvey and Finch found that vitamin K_1 and vitamin K_1 oxide were effective in decreasing the prothrombin time in doses of from 500 to 1,000 mg. It exerted its effect in four to twenty-four hours after intravenous administration. Vitamin K_1 was found to be slightly more effective than vitamin K_1 oxide. Their patients tended to show increased refractoriness to dicumarol for periods up to two weeks following a single dose of either of these substances. They suggested that this be kept in mind when the use of these substances is contemplated for patients with thrombo-embolic disease.

Our experience with vitamin K_1 (2-methyl-3-phytyl-1,4-naphthoquinone) in fourteen patients who had received dicumarol is summarized in Table I. It was administered orally in a 500 mg. dose in gelatin capsules each containing 250 mg. It was given between 4:00 and 5:00 p.m., and the blood was drawn for the determination of the prothrombin time between 8:00 and 11:00 a.m., the following morning.

All determinations of the prothrombin time were done by the Magath modification of the Quick method. With the thromboplastin which is used in this test the normal prothrombin time is 17 to 19 seconds. Prothrombin times corresponding to 30 per cent, 20 per cent, and 10 per cent of normal prothrombin activity as determined from a dilution curve are 27 seconds, 35 seconds, and 58 seconds, respectively.

In addition, tests were made on two patients not listed in Table I four and eight hours after administration of vitamin K_1. A significant drop in prothrombin time was noted at the end of four hours. Eight hours after administration, the prothrombin time of the first patient had dropped from 37 to 21 seconds and that of the second patient from 39 to 26 seconds.

This work was done while Doctor Fuller was a Fellow in Medicine, Mayo Foundation. Doctor Barker is Consultant in the Division of Medicine, Mayo Clinic, Rochester, Minnesota.

TABLE I. EFFECT OF 500 VITAMIN K_1 ON QUICK PROTHROMBIN TIME AND ON PROTHROMBIN ACTIVITY

Case	Quick Prothrombin Time, Seconds		Prothrombin Activity, Per Cent		Amount and Effect of Menadione Bisulfite Given Intravenously
	Before K_1*	20 Hours Later	Before K_1*	20 Hours Later	
1	92	23	7	50	None given
2	55	23	11	50	None given
3	100	25	6	40	None given
4	48	21	13	60	None given
5	57	19	10	80	None given
6	44	21	14	60	None given
7	44	21	14	60	None given
8	62	22	10	55	None given
9	29	21	27	60	None given
10	41	28	16	29	None given
11	34	21	21	60	36 mg. 24 hr. earlier; minimal effect.
12	92	23	7	50	72 mg. daily for 2 days without effect.
13	29	19	27	80	72 mg. daily for 3 days with minimal effect.
14	48†	21	13	60	72 mg.; repeated 4 and 8 hr. later. (Patient in renal failure.)

*500 mg. of vitamin K_1 by mouth.
†250 mg. of vitamin K_1 by mouth.

In Cases 12 and 14 (Table I) a "rebound" phenomenon occurred. That is, the prothrombin time rose again to levels of 52 seconds and 41 seconds, respectively, over a three-day period, although no dicumarol had been given for several days. A second dose of vitamin K_1 controlled this. The blood urea of both of these patients was high.

It can be seen that the prothrombin time of thirteen of the sixteen patients who were tested returned to near normal levels and that of the other three was significantly decreased twenty hours or less after administration of vitamin K_1.

Comment

When the effectiveness of any dicumarol antagonist is being evaluated, it is important to think in terms of prothrombin activity rather than in terms of prothrombin time. The reason for this is apparent when the fact that the relationship between the two is not a linear relationship is considered. In other words, with the thromboplastin used at the Mayo Clinic the reduction of prothrombin time from infinity to 60 seconds would represent an increase of prothrombin activity of only 10 per cent while the reduction of the prothrombin time from 27 to 18 seconds would represent an increase of prothrombin activity of 70 per cent. These percentages are computed from a curve on which various dilutions of normal plasma are plotted against the prothrombin time for each dilution.

Results of the work of Cromer and one of us (Barker) with menadione bisulfite, previously mentioned, briefly can be compared to the results of our work with vitamin K_1. Cromer and Barker studied the effect of a single dose of 64 mg. of menadione bisulfite on the excessive hypoprothrombinemia induced by dicumarol. In a total of thirty-seven cases studied, they obtained reduction in prothrombin time in eighteen hours as follows: (1) to less than 55 seconds (about 10 per cent prothrombin activity) in 95 per cent of cases, (2) to less than 45 seconds (about 15 per cent prothrombin activity) in 81 per cent, and (3) to less than 35 seconds (about 20 per cent prothrombin activity) in 59 per cent.

With a single oral dose of 500 mg. of vitamin K_1, the prothrombin time in our patients was reduced to less than 27 seconds (30 per cent prothrombin activity) in fifteen of the sixteen patients (about 94 per cent) in less than twenty hours. This is in agreement with previous reports.[4,7]

On the basis of the information which is available in respect to the dicumarol antagonists, definite therapeutic implications seem possible. When dicumarol is given, the dosage is varied in amount and frequency in such a way as to keep the prothrombin time within the therapeutic range. With the thromboplastin which is used for prothrombin time determinations at the clinic, this range is between 27 and 58 seconds which corresponds to prothrombin activity between 30 and 10 per cent of normal. An ideal range is considered to be from 35 seconds to 45 seconds (prothrombin activity of 20 per cent to 15 per cent of normal). These ranges are selected on purely empirical grounds and are based on the observation that few patients have intravascular clotting when the prothrombin activity is less than 30 per cent of normal and bleeding is infrequent when the prothrombin activity exceeds 10 per cent.

Little difficulty is encountered in the day-to-day management of patients who are receiving dicumarol if they are properly selected.[6] However, patients who are receiving dicumarol for whom it is desirable to lower the prothrombin time tend to fall into three groups. In Group 1 are those patients whose prothrombin time reaches a dangerous level, but who present no clinical evidence of overdosage. It generally is desirable to lower the prothrombin time of these patients but to continue anticoagulant therapy. Group 2 consists of

those patients for whom it becomes desirable to discontinue anticoagulant therapy completely and as rapidly as possible, but no immediate emergency exists. An example of such a patient would be one in whom renal failure began to develop while he was on treatment with anticoagulants. Group 3 consists of patients who sustain sudden and severe bleeding. While this group is small numerically, it is made up of the patients who have truly emergency conditions.

With this classification in mind, it would seem to follow that the condition of patients in Group 1 could be adequately controlled with intravenous administration of 32 to 64 mg. of menadione bisulfite, since it usually brings the prothrombin time from a dangerous to a therapeutic level. Although it may render a patient a little more refractory to subsequent dicumarol therapy, it does not, as a rule, seriously interfere with continuation of treatment.

The condition of patients of Group 2 can usually be controlled with vitamin K_1 in doses of 500 mg. by mouth, insofar as present experience indicates.

Patients of Group 3 are still the greatest problem, since none of the available dicumarol antagonists exert a rapid enough action to have any significant immediate effect. The immediate treatment of this group must continue to be supportive with replacement of lost blood and local treatment at site of bleeding if possible. Also, the use of vitamin K_1 is indicated in preference to the use of menadione because its action is more rapid and more nearly complete than that of menadione.

One consideration in the oral use of vitamin K_1 as a dicumarol antagonist should be mentioned, although at present it is largely theoretical. Since vitamin K_1 is a fat soluble vitamin, its absorption is retarded in the absence of bile from the intestine and its effectiveness is thereby reduced. Thus, in the presence of an external biliary fistula it could be quite ineffective in combating a prothrombin deficiency. We have had experience with only one such case, and in that case vitamin K_1 was ineffective. It is possible that the simultaneous administration of bile salts to such patients would increase the effectiveness of vitamin K_1, although we have had no experience with this.

Summary

Our experience with vitamin K_1 indicates that it is a satisfactory dicumarol antagonist when given in a single oral dose of 500 mg. This is in agreement with the experience of others who have used the drug.

Vitamin K_1 appears to exert a more rapid and more nearly complete action than menadione.

No toxic or untoward effects were observed in any of our patients following the use of vitamin K_1.

Watching for a "rebound phenomenon," particularly in patients developing renal failure, is advisable.

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CONGENITAL AURICULAR FISTULA

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ALTHOUGH congenital auricular fistula is a common anomaly, very little has been written about it and many physicians do not recognize the condition. This is reflected by frequent reports of misdiagnosed cases.[2,3] Three of the six cases seen by the writer during the past eight months had been previously diagnosed and treated as infected sebaceous cysts.

Congenital auricular fistula has a slit-like orifice leading into a tract a few millimeters deep. The condition may be bilateral, but is more commonly unilateral. The greatest number of fistulae appear in the preauricular region just anterior to the helix[1] (Fig. 1). Because of the frequent occurrence of the lesion in this location, it is often called preauricular fistula; however, the fistula may be postauricular or on the auricle proper. Microscopically, the tract is lined with stratified squamous epithelium.[5]

Various theories concerning the embryology of congenital auricular fistula have been presented, but the one most acceptable is the intertubercular theory of His.[5] According to that theory, the fistula is formed by inclusion of epidermis in one of the grooves existing between the six tubercles forming the external ear. Virchow's original theory of branchial origin now has few exponents. Congenital auricular fistula is regarded as being hereditary and is transmitted as an irregular dominant factor.[4] In two of the six cases reported here, other members of the family had a congenital auricular fistula.

When the fistulous tract becomes infected, the region about the fistula is swollen, inflamed, and tender. Slight digital pressure will produce purulent exudate from the primary tract or from a secondary fistula which results from chronic infection (Fig. 2). During the infected phase, the condition may be mistaken for a sebaceous cyst and improperly treated.

Treatment is indicated when the fistula is infected. Permanent cure can be obtained only by complete surgical excision of the primary and secondary fistulous tracts. Complete extirpation is facilitated if the tracts are injected with methylene blue, thereby staining all of the ramifications. The injection should be made at least a day prior to surgery so that the dye which escapes into the tissues adjacent to the tracts can be phagocytosed leaving only the tracts stained. This technique eliminates the possibility of removing more tissue than is necessary. Either local or general anesthesia may be employed. An elliptic incision is made in the skin about the fistula and the tracts removed *in toto* by sharp dissection (Figs. 3 and 4). Slight undermining of the adjacent skin is required before the wound is closed with interrupted black silk sutures and covered with a pressure dressing. Complete healing occurs within a week.

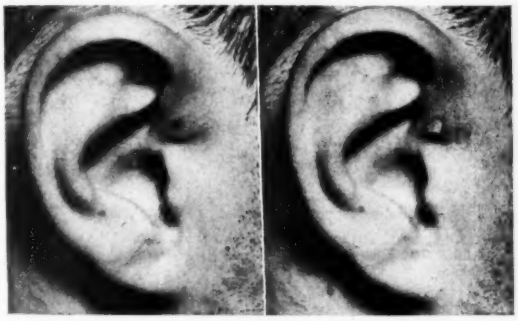

Fig. 1. *(left)* The dimpled area, anterior to the crus helix, is the most common location of congenital auricular fistula.

Fig. 2. *(right)* Digital pressure will produce a purulent exudate from an infected fistula.

Report of a Typical Case

A twenty-five-year-old white man had had bilateral preauricular fistulae since birth. Both fistulae had drained intermittently since early adult life. In January, 1949, because of a persistent irritating discharge, both had been incised, but continued to drain. The following July, incisions were repeated and followed by silver nitrate cautery, but the drainage persisted.

The patient's sister had bilateral preauricular fistulae which had never become infected. When the patient was seen on December 13, 1949, he had bilateral swollen, inflamed, cystic masses anterior to the crus helicis (Figs. 5 and 6). Firm finger pressure produced purulent exudate from the fistulous tracts. On the day of admission, the fistulae were injected with methylene blue and

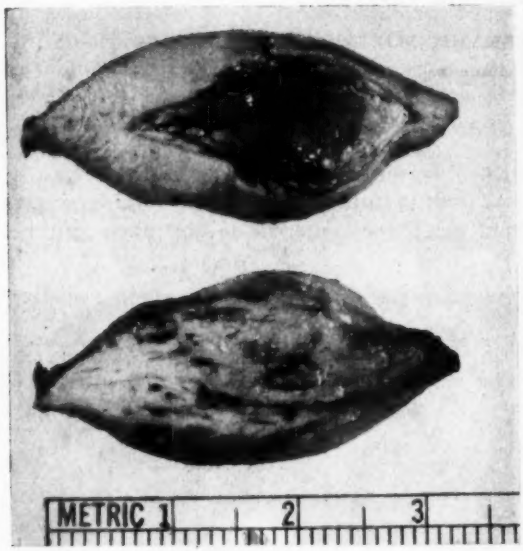

Fig. 3. *(above)* The excised bloc of tissue with the injected tracts dissected.

Fig. 4. *(below)* Under surface of the excised bloc demonstrating that the entire injected fistulous tract has been removed.

on the following day, under local anesthesia, the tracts were removed *in toto* through an elliptic incision. The wounds were closed with interrupted silk sutures and pressure dressings were applied. Five days later, the sutures were removed and the wounds were found to be healing well. Six months later the patient had had no further swelling or discharge (Figs. 7 and 8).

The pathologic specimens consisted of two similar elliptical pieces of skin-covered tissue measuring 2.5 cm. x 1.5 cm. x 1.0 cm. In the center of the skin portion of each of the two pieces, there was a slit-like opening leading into a sinus tract which ended blindly. The tracts were stained blue. Microscopically, the tracts were lined with stratified squamous epithelium and surrounded by plasma cells and lymphocytes.

Summary

Congenital auricular fistula is an anomaly which gains clinical significance if the tract becomes infected.

Excellent results can be obtained by complete surgical excision of the original fistula and its secondary tracts which result from infection.

A typical case of congenital auricular fistula with proper surgical management is presented.

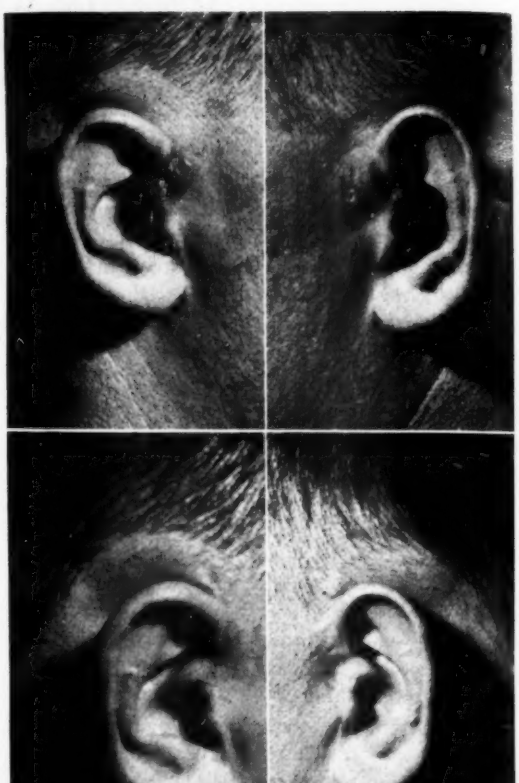

Fig. 5. *(upper left)* Preoperative appearance of the right side.

Fig. 6. *(upper right)* Preoperative appearance of the left side.

Fig. 7. *(lower left)* Postoperative appearance of the right side.

Fig. 8. *(lower right)* Postoperative appearance of the left side.

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INTRAVENOUS ANALGESIA AND AMNESIA IN OBSTETRICS

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THE purpose of this presentation is twofold: first, to give some consideration to any plan of premedication in obstetrics; second, to present the method of intravenous obstetrical analgesia and amnesia as practiced in our hospital.

Premedication in obstetrics has at least the following functions to perform: first and foremost, it must meet the desires and welfare of the mother and her baby; second, it must meet the requirements of the physician.

The patient's welfare is met by the assurance that all that is done for her and her baby is for the best. This assurance is instituted early in the antepartum period with the object in mind of removing fear and apprehension. She is reminded that birth is one of nature's natural phenomenon—a phenomenon accompanied by a certain amount of discomfort, it is true, but with her co-operation and at the proper stage of labor when her pains are such that she desires some help and relief, we are able to give her prompt and almost total relief from her discomfort without interrupting the progress of her labor and with no harm to her baby. Ideally, premedication should produce psychic sedation and amnesia for the mother during the greater part of her labor and during the entire period of her delivery. The agents selected should permit the mother to rest between contractions and so build up her functional reserves. The technique should give rapid and pleasant induction; it should be devoid of hazards for mother and baby, yet offer the mother a pleasant and peaceful emergence from the entire event.

Adequate premedication should permit the obstetrician to practice a conservative policy in the conduct of labor. By and large, he prefers an unconscious patient who will remain perfectly still irrespective of the required duration, position or extent of the obstetrical procedure required for delivery. It is his desire that pospartum symptoms should be few or absent, and from this viewpoint due regard must be given to the complicating factors presented during the immediate antepartum period in the unitary plan of premedication.

The amnesic and analgesic agents and technique should possess a wide margin of safety for both mother and baby. The agents or technique should not be a cause of prolongation of labor, increased operative interference, or complication of labor. The drugs should be devoid of undesirable side effects to both mother and baby. The premedicants should permit exact control of the selected dose as there may be a wide individual variation in tolerance to the drug or drugs used. They must not interfere with the natural forces and protective mechanisms of labor.

Premedication in obstetrics is still a controversial subject even among the experts. However, I believe it is quite accurate to say that the combination of scopolamine and demerol is the method of choice among many obstetricians who desire analgesia and amnesic effects.

From the literature, scopolamine is found to have the following advantages in obstetrics:

1. It is the best amnesic available.
2. It produces psychic sedation with its accompanying relief of apprehension and anxiety, as well as dreamless sleep.
3. It prevents sweating and produces dryness of mucous membranes of the respiratory tract, often to a degree better than atropine.
4. It has the capacity of preventing the vagal type of carotid sinus syndrome.
5. It can relieve bronchospasm and in many instances laryngospasm.
6. It may increase maternal respiration and combat the respiratory depression produced by more potent cortical depressants.
7. Its effect on cardiac rate is not as apparent clinically as is that of atropine.
8. There are no demonstrable ill effects on fetal or neonatal vital functions.
9. Scopolamine can be administered by any route, and the duration of its desirable effects is about two hours.
10. Scopolamine appears to be less toxic than atropine and has a larger margin of safety.

Some of its chief disadvantages that have been pointed out are:

1. It lacks analgesic potency.
2. On occasions it is said to produce edema of the eyelids, lips or uvula.

3. When given intramuscularly, it has the cortical effect of producing excitement and overactivity in about 40 per cent of obstetrical cases.

Demerol hydrochloride is indicated for the relief of severe pain regardless of etiology. Its analgesic power ranks between morphine and codeine and respiratory depression is uncommon. The effect of demerol upon the pregnant uterus of human beings has been studied by Abreu and his associates, and it was found to have no significant effect upon uterine tone or activity. Demerol hydrochloride when used in control of labor pain has been shown to produce satisfactory analgesia, to shorten labor in the primipara, and to be without significant effect upon the baby.

Shortening of labor may be the result of the drug's spasmolytic effect on the cervix or may result simply because the bearing down is more vigorous when the pain threshold is raised. Demerol alone produces analgesia but not amnesia. If amnesia is desired, scopolamine or barbiturate also should be used.

During the past twenty-three months in 366 cases, three of which were twin deliveries, we have used the following premedication and technique—a method which in our experience has secured a high degree of satisfactory analgesia and amnesia with safety to the mother and a minimum or no effect on the newborn.

We give seconal, gr. ¾ or gr. 1½ by mouth following the admission enema. When the patient is making sufficient progress and begins to mind her pains, we administer 50 mg. of demerol and gr. 1/150 of scopolamine intravenously, and while giving the intravenous medication, the nurse gives the patient 50 mg. of demerol subcutaneously. The scopolamine is dissolved in 1 cc. of sterile water* in a 2 c.c. syringe to which is added 1 c.c. of demerol hydrochloride solution containing 50 mg. of demerol. A 25-gauge needle is used and the medication is slowly injected into the antecubital vein. It is important to take three or four minutes for the total injection. It is our custom to carry on a conversation with the patient while slowly injecting the drug and be watchful for any signs of sensitivity, such as a choking sensation or the expression of a feeling of impending disaster. In no instance have we had to discontinue the injection. In many instances the patient voluntarily states that she is experiencing a wonderful feeling and asks us what the drug is. In the majority of cases the patient is sound asleep between contractions in five to seven minutes after introducing the medication. In about 10 per cent of our cases the patient vomited while the needle was in the vein, but we did not discontinue the drug. My nurses inform me it is their impression that about 75 per cent of obstetrical patients receiving intramuscular scopolamine and demerol vomit and their vomiting is more copious and over a longer period of time.

In 322 deliveries of the 366 cases the medication was given only once, while in forty-three instances it was given twice. In only one case was it found necessary to give the medication three times before delivery was accomplished. The shortest time interval before repetition of scopolamine and demerol, intravenously, was one hour and thirty minutes, and the longest time interval was ten hours and fifty minutes. Omitting the three cases in which the time interval of repetition was over six hours, the average lapse of time before the medicine was repeated was two hours and fifty minutes.

The average length of time before delivery was accomplished after the last intravenous medication was one hour and twenty-one minutes. In computing this average I omitted those cases in which no demerol or scopolamine was given during the last four hours of labor. There were eighteen such cases in this series.

Less than 5 per cent of these patients receiving intravenous scopolamine showed any cortical excitation, in contrast with 40 per cent when using the intramuscular route.

When the intramuscular route was used in obstetrical cases, partial or total failures to obtain satisfactory amnesia were due to the fact that the patient received medication too late for material benefit. Due to the quick action obtained by using the intravenous route, the number of such failures is greatly reduced. No babies delivered by this method showed any persistent cyanosis, evidence of narcosis, or otherwise merited the term "sleepy baby," and short quiet labors were the rule. By the use of intravenous demerol and scopolamine, we can honestly tell our patient we can give her prompt and almost total relief from her discomfort without interrupting the progress of her labor and with no deleterious effects to her or her baby.

*For the past 2 months we have been using scopolamine in ampules (Burroughs Wellcome & Co.).

IMPRESSIONS FROM EUROPEAN NEUROSURGICAL CLINICS

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MOST of the summer of 1950 was spent in completing a tour of the principal European Neurosurgical Centers. The previous report* did not include the continental clinics.

The first visit was to the University of Zürich in Switzerland where the Sixth International Congress of Pediatrics met in July. A session was devoted to the neurosurgical problems of children in which a number of neurologists, neuropathologists, and neurosurgeons from various countries participated. The principal interests were concerned with hydrocephalus, subdural hematoma, convulsive disorders, and carotid-jugular anastomosis for the revascularization of the brain.

Professor Hugo Krayenbühl directs the neurology and neurosurgical departments at the University of Zürich. After training with Professor Hugh Cairns in England, he came to Zürich about 15 years ago to establish the first true neurosurgical center in Switzerland. During these years, the department gradually outgrew the bed and surgical facilities of the small hospital Professor Krayenbühl was granted by his old chief, Professor Claremont. In 1951, this service will move into a 900-bed surgical hospital that is under construction, and will have two air-conditioned operating rooms as well as its own electro-encephalogram and x-ray laboratories.

At the present, Professor Krayenbühl has eight assistants who care for the fifty-five neurosurgical bed service. Dr. G. Weber occupies the position of first assistant. The nonsurgical neurologic patients are treated on the medical service. There was a rather international coloring of the service with patients from South America, Spain, Italy, England, France, and Switzerland. Most of the clinicians spoke German, French, and English and in addition possessed knowledge of Spanish and Italian. During ward rounds with Doctor Max Klinger, the Professor's second assistant, it was observed that most of the problems were concerned with several varieties of brain and spinal cord tumors as well as with protruded intervertebral disks. Here, as in most University Clinics, the intervertebral disk problem was solved on the neurosurgical service. Spinograms were rarely done for disks which were believed to be herniating between the fourth and fifth lumbar or between the fifth lumbar and first sacral vertebrae. Cisternal spinograms were carried out regularly for high spinal canal lesions. Spinal fusions were rarely done for the patients who had protruded disks.

Approximately 500 verified brain tumor cases and 100 verified spinal cord tumor cases are treated here annually. Professor Krayenbühl has had extensive experience with spinal cord tumors and has reported on approximately 185 such cases. Cerebral arteriography began to be used extensively here in 1937 in localizing aneurysms and other lesions. The staff has found more than sixty angiomas and aneurysms by this means so far. The percutaneous method is used except for the vertebral arterial study where exposure of the vessel has provided the best results. A Lysholm x-ray table in a room adjoining the surgical suite facilitates the angiographic study. Doctor Hess very ably carries on extensive electro-encephalographic work with an eight-channel Grass instrument in this same clinic. Professor Krayenbühl attempts never to use either pneumo-encephalography or pneumo-ventriculography for cerebral neoplastic localization unless it is absolutely necessary. It is a policy to treat all the brain tumor cases postoperatively with deep x-ray. Ordinarily, doses of 12,000 to 14,000 roentgens are used. There was a recent experience with a patient who died about five months after having a glioblastoma multiforme partially removed and receiving postoperative roentgen therapy. No histologic trace of the tumor remained; but there was evidence of brain tissue destruction which could have been caused by the x-rays.

Approximately 300 patients having mental illness have had prefrontal lobotomies performed here. Great caution is exercised in the selection of cases. The procedure has not been employed as yet for the treatment of pain. No sympathetic system surgery is done because of the insufficient number of beds and lack of operating time. As in

*Titrud, Leonard A.: Impressions from European Clinics. Minn. Med., 32:811-814 (Aug.) 1949.

most European Neurosurgical Clinics, the cranial surgery is done with local anesthesia, and intravenous fluids and blood are seldom given during the procedure. The brain surgery witnessed was done with meticulous care. Professor Krayenbühl's particular interest with neurosurgical lesions concerns the removal of cerebello-pontine angle acoustic neuromas. He placed great emphasis on carrying out operations conservatively so as not to cripple patients, believing it better to reoperate if necessary. During one clinical meeting both Professors Krayenbühl and Dorothy Russell, who is the neuropathologist of the London Hospital, recited experiences with carcinogenic dangers from thorotrast for cerebral angiography. Not only may the thorotrast initiate sarcomas in the liver as well as other organs having reticuloendothelial tissue but "thorotrast tumors" will form beside the carotid artery at the site of injection.

Professor Albert Jentzer is chief of surgery at the University of Geneva in Switzerland. Although a general surgeon, he does the necessary neurosurgery. In his absence, Doctor Horace Barbey was in charge of the surgical department. A formal neurosurgical division has never developed in Geneva. The University's teaching hospital is the Hopital Cantonnal which has twenty-five of its 200 beds for patients with neurosurgical problems. Although most types of neurosurgical procedures are done here, this field does not occupy a particular place of prominence or interest. Much traumatic neurosurgery is done and most of the additional work is that of necessity.

Paris has been a place of importance in original neurological and neurosurgical thinking and research for a long time. Unfortunately, the difference existing between the French and English languages has provided a constant barrier against a full and common understanding of many important advances in medicine and surgery. The University of Paris has about 8,000 medical students and the senior classes usually average about 600 students. There are considerably smaller medical colleges located in Bordeaux, Lyons and Marseilles. Therefore, Paris has developed as the center of medical teaching in France and this is particularly true in neurosurgery with its eight trained neurosurgeons.

The premature death of the famous Clovis Vincent resulted in his renowned neurosurgical clinic at the Hôpital de la Pitié to come under the able direction of a general surgeon who is also gifted in neurosurgical work, Professor Petit-Dutaillis. Doctor Gerrard Guiot, assistant to the chief, accomplishes much of the clinical work here; he is an excellent surgeon. This clinic is one of the largest in France and has about 130 neurosurgical beds. In addition to a modern operating suite having two air-conditioned operating rooms, the clinic's own x-ray facilities are also centrally located. An older and adjacent operating suite serves as an auxiliary unit. A great deal of tumor surgery is done on this active service. All of the intervertebral disk surgery of this large hospital is done by the neurosurgeons. Spinal fusion is almost never done for these patients. Prefrontal lobotomy for mental disease and sympathetic surgery for hypertension have not been done extensively here. Their results for relieving intractable pain have been much better after rhizotomy or tractotomy than after prefrontal lobotomy.

Doctor Guiot informed me that Professor Petit-Dutaillis observed the existence and location of sensory nerve tracts in the brain stem and midbrain about 25 years ago. This information led him toward the perfection of high cervical cordotomy for obliterating intractable pain in the upper extremity. It was learned that the fibers of the spinothalamic tract concerning the upper extremity are in the extreme anterior part of the spinal cord, extending quite medially in the upper cervical segment. The sensory fibers for the lower part of the body are directly behind these. It was found that transecting this pain tract at the third or fourth cervical segmental level was dangerous because of respiratory disturbance. Therefore, the operation is performed quite safely now at the first or second cervical segmental level; and done with local anesthesia so as to make sensory tests possible during the cordotomy. Over the years, approximately 100 patients have been treated with this procedure. The staff believes that midbrain tractotomy and prefrontal lobotomy are much less satisfactory methods than cervical cordotomy to free the upper part of the body from pain.

Cerebral arteriography has reached a high level of perfection at this Neurosurgical Clinic of Professor Petit-Dutaillis, particularly because of the diligent work of Doctor Pierre Sergent. He has performed 500 to 600 carotid and about thirty vertebral arteriograms at the rate of nine or ten a week. These injections are all percutaneous and he observed that it is easier to do a vertebral than a

carotid angiogram. He learned that with carotid filling, the circulation in the posterior and basilar part of the brain almost never appears on the x-rays. Likewise, vertebral arteriography almost never outlines the carotid circulation. Doctor Sergent has done extensive anatomic postmortem studies of the blood circulation of the brain. He has been impressed particularly by the frequent arterial variations of the basilar circulation as well as many peculiarities in the collateral circulation in the brain. His work which is being published will be a valuable contribution.

Another famous neurosurgical clinic is in the historic Hôpital de la Salpétriere under the direction of Professor Jean Guillaume and his able assistant Doctor Gabriel Mazars. There are about fifty neurosurgical beds at this hospital which also houses an outstanding department of medical neurology. Guillaume and Mazars carry on additional work at the Clinique Montagne and Clinique Moliere which each has about forty neurosurgical beds. Their neurosurgical team operated on approximately 800 brain tumor patients last year. Additionally, an unusually large number of prolapsed intervertebral disks were removed. They have done about 80 cortical excisions for focal epilepsy with favorable postoperative results. The wife of Doctor Mazars has contributed greatly in this work because of her skill in localizing the epileptogenic areas and particularly by her interpretation of the many electro-encephalograms. Their work in this field is outstanding in France; and at the present they are preparing a publication concerning the surgical treatment of epilepsy.

Guillaume and Mazars favored posterior rhizotomy in the treatment of the pain of angina pectoris. They carried out very few sympathectomies for hypertension or peripheral-vascular disease. During the past three years they have had a series of about eighty patients for whom they performed cervical cordotomy for pain relief. Prefrontal lobotomy is not favored particularly as a means of eliminating pain. It should be emphasized that cervical corotomy is employed only for treatment of intractable pain in the upper part of the body; the standard thoracic cordotomy is generally employed to eliminate pain in the pelvis and lower extremities. Mazars stated that they had unusually good luck in evacuating intracranial hematomas and even in securing hemastasis in some of the apoplectic cases; this neurosurgical procedure has certainly not been developed in the United States.

Jacques LeBeau, who worked with Clovis Vincent at the Hôpital de la Pitié, now directs the neurosurgical clinic at the Hôpital Boucicout. J. B. Tavernier is associated with LeBeau. There are only fifteen neurosurgical beds at this hospital which is one of the medical teaching units associated with the University of Paris. LeBeau is engaged also in a vast private practice and expects to have approximately eighty neurosurgical beds in a new hospital on the outskirts of Paris by 1951. The neurosurgical work carried out at the Hôpital Boucicout is much the same as elsewhere. LeBeau has had impressive results with cortical excision of Brodmann areas nine and ten for mental illness as well as for pain relief in cases of malignancy in that these patients had no debilitating postoperative personality alteration. He was somewhat hesitant about carrying out high cervical cordotomy bilaterally because of risk from bleeding in the spinal cord and disturbance of other than the spinothalamic tracts.

M. David is the chief neurosurgeon at the busy clinic of the Hôpital Psychiatrique Sainte-Anne. A great deal of anatomical research has been done here regarding the thalamus and adjacent hypothalamic structures. At the present, the clinic is being rearranged for greater facility. M. R. Klein who spoke at the Zürich meeting about the treatment of hydrocephalus confines his neurosurgical work largely to children. His clinic is at the Hôpital Necker Enfants Malades.

Professor Paul Martin is head of neurosurgery at the University of Brussels in Belgium. There are about thirty neurosurgical beds in this modern unit. In addition to the general neurosurgical work done, there was a special interest here in the surgical treatment of focal epilepsy. The cases were studied thoroughly on the neurological service. Electro-encephalographic records were being repeated frequently. Professor Martin emphasized that at least three years must pass without recurrences of seizures after excision of the epileptogenic cortical area before any thought of cure can be entertained. He has observed marked generalized dysrhythmia on electro-encephalographic records more than a year after removal of the cortical scar.

Certainly one of the outstanding neurosurgical centers of Europe is that of Professor Edvard A. V. Busch at the Kebenhavns Militaerhospital, Copenhagen, Denmark. This is a teaching unit of the University and has sixty neurosurgical beds.

The buildings are of a military cantonment type, the main structure being two stories. There are two large and quite modern air-conditioned operating rooms with an adjacent electro-encephalographic laboratory. Each operating room is equipped with a large portable x-ray machine having a Lysholm head attachment for ventricular and cranial x-rays as well as for cerebral arteriograms. Plans have been made for the construction of a new building with three operating rooms. It is expected that the neurosurgical clinic will remain in this military hospital for the next ten to fifteen years.

At the present, there are ten resident physicians training in neurosurgery here. Except for Doctors Lara of Argentina and Uwăng of Formosa, the remaining are Danes. Doctor Broager carried on most of the clinical and operative work under Professor Busch. Busch has trained five neurosurgeons who hold responsible positions throughout Europe now. His present clinic has been a development over a period of seventeen years.

This is an extremely busy clinic. During the past year, 214 brain tumor operations were done here. Over the years, a series of almost 2,000 prolapsed intervertebral disks have been operated upon. There is great enthusiasm here in sympathectomy for hypertension; and also in prefrontal lobotomy for mental illness.

Professor Busch favors the bilateral supradiaphragmatic sympathectomy of Peet in relieving hypertensive symptoms such as severe headaches, particularly in the age group of about sixty years. However, he does not believe this operation is very effective in lowering blood pressure. For patients of about this age who are better operative risks, the thoracolumbar sympathectomy of Smithwick is favored. These individuals have the two sides operated upon within about ten days during the single hospital stay. Professor Busch has carried out a more radical sympathectomy approaching the thoracic trunks by the removal of portions of the sixth and the eleventh or twelfth ribs. The sympathetic trunks are removed from the fourth thoracic to the first lumbar segmental levels. More than 100 patients have had this operation during a two-year period; and it is believed that this procedure reduces the blood pressure more than the other types of sympathectomy. This form of procedure is preferred to Poppen's technique of removing the sympathetic trunk from the fourth thoracic to the fifth lumbar level because the operative shock and postoperative fatigue are less.

Most of the neurosurgical operations are done with local anesthesia here as in other European clinics. This seemed to be quite adequate for craniotomies but not for sympathectomies or spinal surgery. Bilateral prefrontal lobotomy was employed for the relief of intractable pain. All lobotomies were preceded by cisternal ventriculograms. Alcohol root injection was usually used for trigeminal neuralgia; although at times the mandibular division was electrocoagulated. If the pain recurred, then temporal trigeminal rhizotomy was done rather than the medullary tractotomy of Sjöquist which was considered more dangerous.

The surgical technique was excellent and the procedures were done with dispatch. Very adequate decompression was accomplished in cases of malignancies of the brain. Angiography was used extensively to localize cerebral lesions. If the angiogram revealed a pattern of great vascularity as that of a meningioma and the patient was not in emergent need of cerebral decompression, then x-ray therapy was given over a two- to three-week interval with a total dose of 2,000 to 3,000 roentgens in approximately 15 treatments in order to thrombose many of the vessels and greatly reduce the blood loss of tumor removal. Postoperative x-ray therapy is used only in selected cases as pituitary adenomas, cerebellar tumors of children, and certain midbrain lesions.

Professor Norman M. Dott directs the neurological surgery service at the Royal Infirmary, University of Edinburgh in Scotland. During his convalescence from an orthopedic operation, F. J. Gillingham administered the department. Sir James Learmonth is the chief of surgery at the University. Professor Learmonth has a great interest in peripheral-vascular disease and therefore the majority of the sympathetic surgery is done on his general surgery service.

Most of the neurosurgery is done at the Royal Infirmary at the present where the service has twenty beds. After a few convalescent days, the patients are transferred to Bangour, about 20 miles from Edinburgh, where eighty-five neurosurgical beds are available in a large mental hospital. Surgical facilities are now being installed in the Bangour Hospital so that operations may be done there also. A new building addition has been planned for the neurosurgical service at the Royal Infirmary.

In the Royal Infirmary, the service has two rather small and well-equipped operating rooms for the service. X-ray facilities and a separate electro-encephalogram room containing a four-channel machine are easily available. Neurosurgery is an extremely busy service here also and about 100 patients remain on the waiting list constantly for admission. Approximately 150 patients having brain tumors were operated upon last year. Because of necessity, most of the operations done are for brain tumors. Percutaneous angiograms are used commonly for diagnosis and localization. A large number of prolapsed intervertebral disk cases are operated upon; and very few spinograms are done.

The type of surgical procedure carried out for various problems is much the same as throughout the United States. As contrasted with the Continental Clinics, intratracheal anesthesia is used popularly throughout Scotland and England. A sitting position for the patient is maintained during posterior fossa cranial surgery as well as for the trigeminal rhizotomies. It was interesting to observe that while a ventriculogram is being done in a sitting position, a spinal needle is inserted in the lumbar canal for air injection so that the lower limits of the tumor may be determined from the x-rays taken. For more than eight months now, preoperative exsanguination of brain tumor patients has been done and has proven worth while. This procedure is particularly helpful in the event of vascular tumors and when the intracranial pressure is high. As much as four pints of blood is removed from the radial artery and then citrated to be ready for administration to the patient after the surgery. During the operation, the blood pressure may be about 80 mm. of mercury; the pulse as fast as 130 to 140 per minute; and the respiratory rate at 40 to 50. It is extremely important to have a high oxygen concentration administration intratracheally during this period when the circulating blood volume is decreased. During the operation, the mass of the brain is reduced and the bleeding problem of tumors is simplified. There had been no ill effects from this procedure at this clinic and the staff uses it enthusiastically.

Cerebral angiography is frequently done here. Professor Dott has a great interest in developing a surgical treatment for aneurysms of the posterior or basilar circulation; and for this reason vertebral arteriograms are done often. It was interesting to learn that favorable results had been obtained from unilateral prefrontal lobotomy done on the dominant side for the treatment of intractable pain. The operative care of brain tumors seemed to follow the standard pattern. Radiation therapy for these lesions is not used much.

The National Hospital for Diseases of the Nervous System in London was visited during this tour again. This is actually the largest clinical British postgraduate center for neurology and neurosurgery. Sir Charles Symonds directs the neurological division. Wylie McKissock is the chief of neurosurgery and is aided by Harvey Jackson. All of the medical staff here are of the graduate school status or higher. This is in contrast with other teaching hospitals of London which are concerned largely with the medical undergraduates as well as with those studying in the specialties. Many of the doctors who come here for their advanced training in neurosurgery are already qualified by the Royal College of Surgeons in general surgery. The neurosurgical service here has forty-five beds. The facilities are very modern; and there are two air-conditioned operating rooms. There are four graduate fellows on each of the neurological and neurosurgical divisions. Very few psychiatric patients are cared for in this hospital which has a total bed capacity between 200 and 300.

Mr. McKissock was on vacation during this visit, leaving Mr. Jackson in charge. Except for the vacation periods, McKissock operates here three days a week, and Jackson operates during two days. Approximately 350 brain tumors a year are operated upon here. Intratracheal anesthesia is used extensively. The preoperative exsanguination as carried on at Edinburgh is not favored because of fear of cerebral anoxia.

The Smithwick operation for hypertension is standard here. Alcohol root injection is used for trigeminal neuralgia prior to consideration of rhizotomy. The transtemporal operation is the one done if necessary. The trigeminal tractotomy of Sjöquist done in the brain stem is not carried out except in special cases because this staff is as hesitant as that at Edinburgh because of the complications. It was a pleasure to see how expertly trigeminal rhiztomy was done here with local anesthesia in the debilitated and aged patients. Prefrontal lobotomy has not met with favor here as a means of obliterating intractable pain. However, this procedure is employed extensively for

mental disease and the Freeman-Watts technique is used.

The impression gained after visits to this hospital during two different trips is that the neurosurgical work done is fast and excellently carried out. A great practical sense is used in dealing with the various problems. It is definitely one of the better places for a touring student to stop.

Professor D. W. C. Northfield is the head neurosurgeon at the London Hospital. There are about fifteen adult neurosurgical beds and an additional variable number of patients are on the neurological, pediatric, and general surgical services. In addition, there are about twenty neurosurgical beds at the country annex hospital at Brentwood which is chiefly a children's hospital.

There are four active operating days a week at the London Hospital. About seventy-five to 100 brain tumor patients are operated upon each year. The one operating room, although not modern, is well equipped. The prolapsed intervertabral disk surgery and various types of sympathectomies are done on this service. The staff had changed from the more radical thoracolumbar sympathectomy of Poppen to that of Smithwick. In the treatment of trigeminal neuralgia, injection of alcohol was made into the gasserian ganglion. When pain recurred, the transtemporal trigeminal rhizotomy was done. Professor Northfield had reluctance about using the Sjöquist tractotomy except in special instances. During this visit Professor Northfield operated upon his sixth case of frontal osteoma. The patients having this rare condition ordinarily come for medical aid because of empyema of one of the sinuses. Skull x-ray examination reveals both the presence of a sinus opaque because of empyema as well as an osteoma growing into the sinus to prevent the outflow of drainage. The osteoma ordinarily tends to grow from the floor of the frontal or ethmoid sinuses and pushes the sinus mucosa during its growth. He emphasized the great need for immediate removal of these lesions to prevent the effects of progressive intracranial infection.

Sir Geoffrey Jefferson is the professor of neurosurgery at the Manchester Royal Infirmary. This is a free hospital that serves a densely populated industrial and farming area; and is an excellent teaching institution. The neurosurgical bed capacity is quite limited with 17 for females and 15 for males. This limiting factor has caused the neurosurgical patient waiting list for admission to increase to a present number of about 450. The operating theater is used for four days each week. It was estimated that between 150 and 200 brain tumor patients are operated upon here each year.

In addition to Professor Jefferson, there are five members of the neurosurgical attending and house staff. A modern air-conditioned operating and x-ray suite has just opened here. One large room and two small rooms are employed for surgery. The entire unit is on the ground floor and is very practically arranged. Most of the patients are housed in two large wards, and some small adjacent rooms. Most of the diagnostic work is done on the neurosurgical service. An entire afternoon each week is used for seeing outpatients. Professor Jefferson attends this clinic and examines many of the patients himself taking great pains to be instructive about many puzzling problems. This was one of the most impressive teaching clinics visited on this tour.

Because of the large surgical load, most of the operative procedures are for the tumor patients. An extensive use is made of carotid angiography for localization. Obviously malignant gliomas of the brain diagnosed by the typical vascular pattern on cerebral arteriography or biopsy done through a cranial trephine hole are not operated upon with a formal craniotomy and the removal of a large amount of the tumor. It has been found more valuable to employ the few available beds for patients with more curable conditions. The prolapsed intervertebral disks cases are operated upon by the neurosurgeons. The sympathetic system surgery is done on the general surgical service.

The surgical technique was meticulous. The various operative procedures done were much the same as in the American Clinics. Intratracheal anesthesia was used principally for the cerebellar operations. Most of the cerebral surgery was carried out under general anesthesia because it was believed that rebreathing through the intratracheal tube caused increased intracranial pressure. Spinal anesthesia was used in prolapsed disk surgery. Dr. Hunter of the anesthesia department employed venous pressure measurement rather than the recording of arterial blood pressure and pulse rate to ascertain the condition of the patient during surgery. He has found that the changes in venous pressure reflect more quick-

(Continued on Page 354)

Case Report

THE EFFECT OF SOME OF THE USUAL CARDIAC DRUGS IN REGARD TO AN INTERMITTENT DELAYED INTRAVENTRICULAR CONDUCTION

HENRY L. ULRICH, M.D. and GASTON SAUVE, M.D.
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M. K., aged fifty-two, a paperhanger and painter, and a highly nervous individual, reported in August, 1950, to the private office, with the following complaints: Since March, 1950, he had had a heavy feeling or congestion in his chest when walking against the wind or after severe exertion. He experienced dizzy spells particularly when waking up in the morning. There was a weight loss of 20 pounds in two months.

His family history was noncontributory except that his father died at seventy-nine of heart failure. His past history elicited three attacks of pneumonia in his adolescence and tonsillectomy at age eleven. He is married; the wife is healthy, and two children are living and well, the younger aged twenty-seven.

In August, 1950, physical examination was practically negative with the exception of blood pressure which read 180 over 100. His blood, urine and electrocardiogram were normal. Renal function was normal. X-ray examinations showed the gastric tract to be normal and functional test of the gall bladder gave normal results. On the day he left the office, in August, he had been injured in a collision with an automobile. The left elbow and left knee were traumatized. The patient was badly shaken up. Following this accident he took a rest of two weeks and in an attempt to go to work he found it was impossible to do so. He was then hospitalized for rest and observation. On admission at the hospital, no new findings were determined except that he was unduly nervous, exhibited variable blood pressure readings, although completely at rest, also anginal symptoms. His electrocardiogram now showed delayed intraventricular conduction resembling right bundle branch block in all leads and distributed irregularly or intermittently between normal complexes (Fig. 1). The house officer (G.S.) became very much interested in this variation of conduction. After several observations, it occurred to us that we might use serial readings to observe the action of different drugs given usually to patients with coronary insufficiency or infarction. The problem that presented itself was that we were dealing with a case of coronary insufficiency which had an area or focus of ischemia or fatigue in the myocardium; this area functioned normally for a few cycles and then again abnormally for a few cycles. The anatomical area of this focus was assumed to be on the septum along the right bundle.

The drugs used were nitroglycerine; oxygen by Boothby's masks, ninety minutes; aminophyllin 3½ grains intravenously; oxygen for twenty-four hours in a tent; papaverine grains 1 intravenously; 1 ounce of brandy orally; atropine grain 1/100 subcutaneously. There were two physical tests, valsava and exercise.

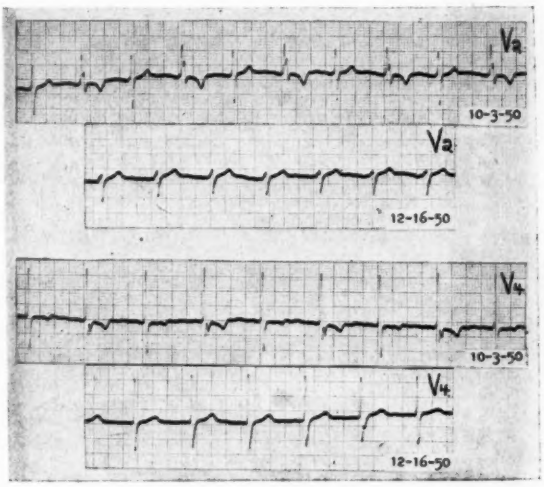

Fig. 1. These tracings illustrate clearly the intermittence of the intraventricular conduction defect as well as the improvement over a period of two months' rest.

We cannot draw any conclusion from these observations. They are reported to call attention that occasionally the opportunity arrives such as this one in which the effect of drugs can be studied at the bedside rather than in a laboratory.

We can call attention to the fact that during the period of observation (see the protocol and charts), this man's conduction system improved with rest (Fig. 2); that oxygen, aminophyllin, nitroglycerine and papaverine modified temporarily the conduction system in this man.

No correlation can be seen between the rate and the constancy of the one-to-one ratio or the disappearance of the abnormality in the ventricular conduction; but at a rate of 62 per minute or less, the so-called BBB is always absent, and likewise the ratio of one-to-one is constant at the rate of seventy-five per minute.

These observations corroborate the clinical concept

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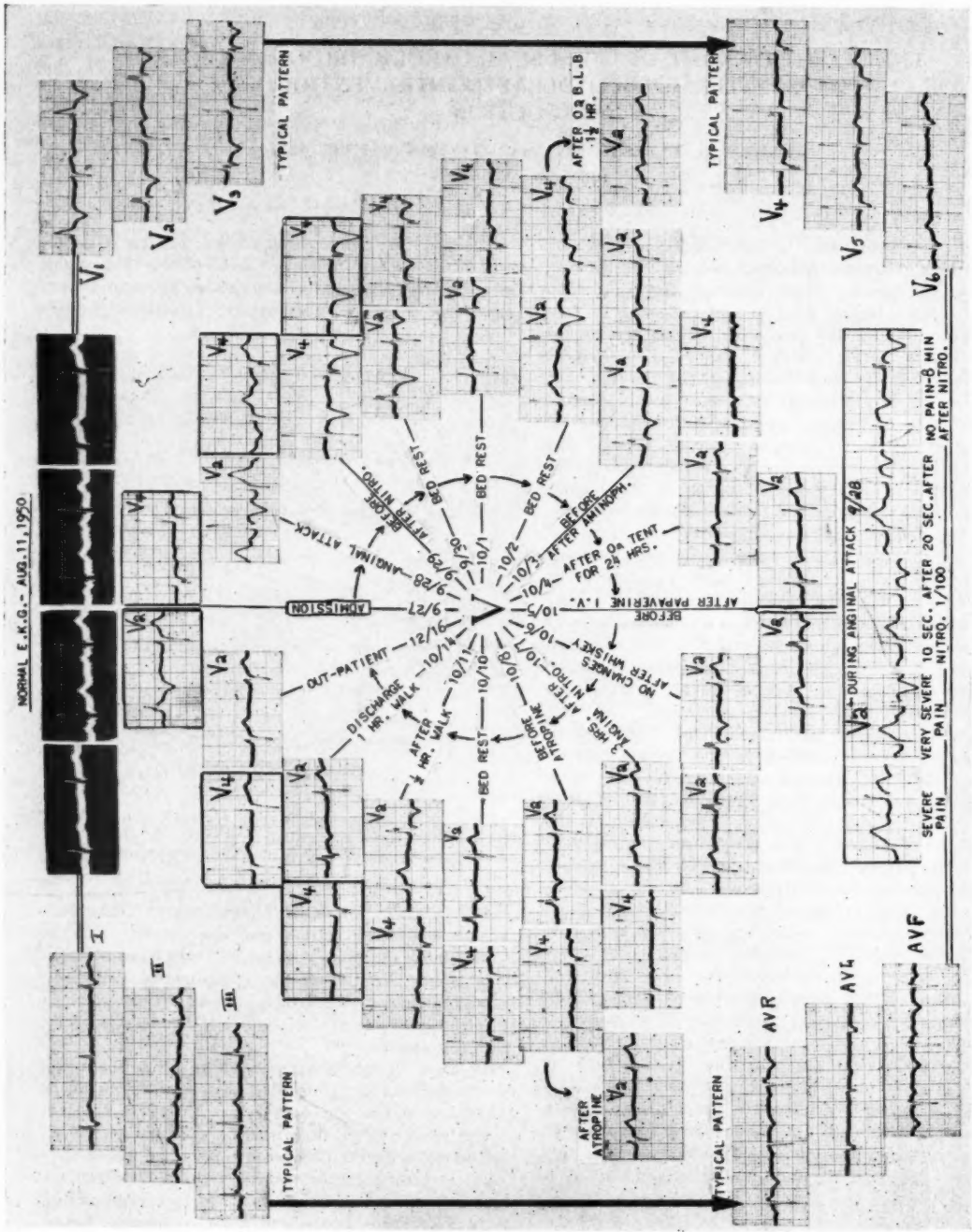

Fig. 2. Diagram showing the chronological evolution of leads V2 and V4 over a period of eighteen days while patient was hospitalized and also after two months of convalescence. V2 and V4 were chosen as they show more clearly what the other leads did also register. A typical pattern of the intermittent intraventricular delayed conduction is shown in the four corners. Above, the normal E.C.G. and below, serial tracings of V2 during an anginal attack.

that these drugs are of value temporarily, if not permanently, in the treatment of coronary disease.

Protocol*

August 11, 1950—Normal E. C. G.

Sept. 27, 1950—Rate 71/min. Right BBB?—Intermittent. The ratio of normal complexes to abnormal ones is inconstant. The so-called normal complexes show a positive T in V leads.

Sept. 28, 1950—Rate 88/min. Tracing taken while the patient had a retrosternal anginal type of pain, as well as after a nitroglycerine tablet, gr. 1/100 had been given S. L. Intermittent right BBB with inconstant ratio. V2-3-4 showed a positive T in the so-called normal QRS pattern until 8 minutes after cessation of pain by the nitroglycerine at which time they all became negative. The QRS complexes of V 2 also became more notched 8 minutes after cessation of pain.

Sept. 29, 1950—Rate 75/min. Intermittent right BBB with constant ratio of 1 to 1. T 1 of normal patterns is now isoelectric. The ratio of 1 to 1 was changed to an inconstant one by having the patient take a deep breath. T V 4 is now deeply negative. While patient was feeling well, a nitroglycerine tablet gr. 1/100 was given S. L. and tracings and B.P. were taken simultaneously 15 seconds—1 min -2-3-8 minutes after and no appreciable changes in V 4 and the B.P. were noted.

Sept. 30, 1950—Rate 83/min. BBB constant at a ratio of 1 to 1. In the so-called normal complexes TV 1 diphasic TV 2 -V3 still negative and TV 4 less negative than on Sept. 29, 1950.

Oct. 1, 1950—Rate 75/min. BBB constant at a ratio of 1 to 1. TV 1 and TV 2 diphasic. TV 3 less negative than on Sept. 30, 1950. TV 4 now diphasic.

Oct. 2, 1950—Rate 83/min. BBB constant at a ratio of 1 to 1. TV 1 and TV 2 now positive. TV 3 now diphasic. After 1½ hours of O 2 by Bt. B. Mask—6 liters (Rate 71). The only BBB present are seen in Lead III (Rate 75). No remarkable changes in T waves.

Oct. 3, 1950—Rate 75 to 83/min. BBB still constant at a ratio of 1 to 1. TV 3 — TV 4 still diphasic. The V 2 lead was taken before I.V. injection of aminophyllin grs 3.¾ and at the following intervals: during injection as well as 2-3-4-5 and 10 minutes after. Rate 10 min. after I.V.—60/min. TV 2 was positive until 2 min. after injection at which time it became diphasic. The BBB disappeared 5 min. after injection and was still absent 10 min. after.

Oct. 4, 1950—Rate 62. This E. C. G. was recorded after patient had been in O 2 tent for 24 hours—8 liters. No BBB noted. TV 4 again became negative.

Oct. 5, 1950—Rate 70 to 75. BBB disappeared by having the patient hold his breath in deep inspiration (rate 65). Papaverine grs. 1 was given I. V. and tracings were taken at the following intervals: during I. V. 1 Min. -2-3-7-20-21-22 minutes after. The BBB disappeared after 7 minutes (rate 63) until 21 min.—at which time it recurred (rate 68) and again was not recorded on the "22 Min" tracing (rate 68).

Oct. 6, 1950—Rate 75. BBB still present at a ratio of 1 to 1. A tracing was taken 30 min. after ingestion of one ounce of 84 per cent proof brandy and no changes were observed. Rate after -75.

Oct. 7—Rate 65. Patient had a precordial dull pain at 8:30 A. M. and a nitroglyecrine tablet gr. 1/100 was given S. L. This tracing was registered at 11:45 A. M. BBB is very inconstant and is present for a few beats in leads AVR-AVL-V 1-V 2-V 3, TV 4 is less negative than on Oct. 4, 1950.

Oct. 8, 1950—Rate 68. BBB disappeared spontaneously in lead AVL-AVF -V 1 and part of V 2. TV 4 now diphasic. Immediately following this tracing, the following test was done—Atropine SO 4 gr. 1/100 was given S. C. and recordings were taken at the following intervals: 2 sec. after—2 min. after 4-5-10-12-14-16. The BBB disappeared after 5 min. (rate 62) and reappeared in the 12 min. tracing and was constantly present at a ratio of 1 to 1 from 14 min. (rate 71) thereafter.

Oct. 10, 1950—Rate 75. BBB constant at a rate of 1 to 1. TV 4 still diphasic.

Oct. 11, 1950—Rate 83. Patient had been walking intermittently for a half hour. BBB constant at a ratio of 1 to 1. TV 4 still diphasic.

Oct. 14, 1950—Rate 79. Patient had been up and around for one hour. No changes.

Oct. 15, 1950—Patient discharged from hospital.

Dec. 16, 1950—Rate 83-88. BBB inconstant. Tracing taken 2 months after restricted activities, no work permitted.

*Owing to the number of tracings only certain ones are used to show the effect of the respective drugs.

Acknowledgment

We are grateful to Mr. Russell Nye, Superintendent of the Northwestern Hospital, for sanctioning some of the expense of this study.

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(Continued from Page 325)

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History of Medicine In Minnesota

MEDICINE AND ITS PRACTITIONERS IN OLMSTED COUNTY PRIOR TO 1900

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(Continued from the March issue.)

In the maintenance of public health and welfare through preventive medicine Dr. C. H. Mayo played a major part. Throughout his career he was a proponent of dentistry, recognizing that dental infection often is the cause of general systemic infection and of disease; because of his untiring work he was recognized by honorary membership in the great dental societies. From 1900 he was for many years a member of the Minnesota State Board of Health, during which he worked for legislation to further the purposes of public health. From May 1, 1912, until he resigned after twenty-five years of able work, he was health officer or a member of the Public Health Commission of Rochester, directing its work in relation to tuberculosis, undulant fever and other diseases carried by contaminated milk and other foods. He aided in securing the first modern sewage disposal plant of Rochester, one of the first of such plants in the state. A novel contribution concerned with the collection and use of garbage was his purchase and presentation of the hog farm to the city of Rochester. By selection and feeding of garbage collections from city residences and institutions, it has been possible to raise feeder pigs, the income from which has contributed in large measure to the support of the public health work in Rochester.

The name of Mayo for more than eighty years has been identified in Rochester with civic improvement. When the long-envisioned Mayo Civic Auditorium was to become a reality (1938-1939) and Dr. Charles H. Mayo reluctantly allowed his name to appear as donor, with the Mayo Properties Association and without the specified name of his brother, Dr. William J. Mayo, he made his attitude clear; on July 28, 1939, when he spoke at the laying of the cornerstone, he said, "I wish to say, first of all, that the gift is a family affair," and proceeded to explain his brother's part.

The unity of the Mayo brothers cannot be overvalued. Not long after Dr. W. J. Mayo gave up surgery, Dr. C. H. Mayo relinquished the work because of failing health, and it was obvious that the two found comfort in the fact that they shared this partial retirement.

Dr. C. H. Mayo with his brother established the Mayo Foundation for Medical Education and Research, in affiliation with the University of Minnesota, and a few years later the brothers created the Mayo Properties Association; the function of the two organizations is a matter of public record. When changes in administrative policy were indicated in the clinic and foundation, the brothers were in accord.

Although in the last years of his life a succession of illnesses so reduced

Dr. C. H. Mayo's strength that he was obliged to withdraw from his former activity, he came daily to the clinic when he was able, visited all departments informally and was accessible to the many who wished to see him. In the late spring of 1939 he went to Chicago and it was there, after overexertion, that he succumbed to pneumonia, at the Mercy Hospital, on May 26. He died without regret, happy in the devotion of family and friends and in the knowledge of work well done. He had lived abundantly.

On July 26, 1943, Edith Graham Mayo, aged seventy-two years, died at St. Mary's Hospital, Rochester, after a long illness. The death of the younger son, Dr. Joseph Graham Mayo, had occurred seven years previously, by accident, on November 9, 1936.

In 1947 the survivors of Dr. Charles Horace Mayo were a son, Dr. Charles W. Mayo, of Rochester, Minnesota; four daughters, Dorothy Mayo and Louise Mayo (Mrs. L. Arlin) Elwinger, both of Rochester, Edith Mayo, wife of Dr. Fred W. Rankin, of Lexington, Kentucky, Esther Mayo, wife of Dr. John B. Hartzell, of Detroit, Michigan; an adopted daughter, Marilyn Mayo (Mrs. Ralph S.) Mason, in California; and a foster son, John Nelson, of Johnson City, Tennessee. There were twenty-four grandchildren.

Dr. Charles W. Mayo, with the Mayo Clinic since 1927, is head of a section in surgery in the clinic and professor of surgery, the Mayo Foundation; during World War II he served as colonel in the Medical Corps of the Army of the United States, first as unit director of the 71st General Hospital, and subsequently in other hospitals, general and station, all affiliated units of the Mayo Clinic in New Guinea and the Philippine Islands, and as consulting surgeon to the Army Forces of the Western Pacific. Dr. Fred W. Rankin was with the Mayo Clinic from 1916 to 1933, the last seven years as head of a section in surgery; since 1933 he has been in Lexington, Kentucky, chief surgeon to St. Joseph's Hospital of that city; during World War I he served as major with the American Expeditionary Forces; during World War II he served in uniform nearly four years, with the grade of brigadier general, as chief surgical consultant to the Army of the United States; he has the Distinguished Service Medal and is entitled to ribbons for service in various theaters of the war; he was wartime president of the American Medical Association. Dr. John B. Hartzell entered the Mayo Foundation in July, 1927, as a transfer fellow in surgery from the Graduate School of the University of Minnesota; since October, 1930, he has been practicing in Detroit, Michigan; he is assistant professor of clinical surgery, Wayne University College of Medicine, director of surgery, the Charles Godwin Jennings Hospital, and attending surgeon, the Receiving Hospital; during World War II he served as commander in the United States Navy, in naval hospitals in the United States and as medical officer aboard an attack transport with the Amphibious Force in the South Pacific.

Simeon Paul Meredith (1852-1930), homeopathic physician, a graduate of the Hahnemann Medical College and Hospital, in Chicago, was from 1882 until his death a respected practitioner and citizen in various places in southern Minnesota: Austin, Grand Meadow, Spring Valley, Pleasant Grove, Windom, Garden City and Mankato. Full biographical notes on Dr. Meredith appeared in a history of medicine in Fillmore County prior to 1900 (Guthrey). Dr. Meredith held an exemption certificate in Minnesota.

The present entry serves to establish Dr. Meredith's association with Olmsted

County. In February, 1899, he removed with his family from Spring Valley, Fillmore County, where he had spent ten years, to Pleasant Grove, to assume the practice of the late Dr. Marshall T. Bascomb, who had died on January 28, 1899. He succeeded Dr. Bascomb as county physician for the village and the township of Pleasant Grove. In the autumn of 1902 he left Pleasant Grove for Grand Meadow, Mower County.

Dr. Meredith died at his home in Mankato on September 1, 1930, after many years of failing health.

Melvin C. Millet (1868-1907) was born on September 22, 1868, in Sumner Township, Fillmore County, near the village of Hamilton, the son of Mr. and Mrs. Roscoe G. Millet. He had two sisters, Rose and Roby, and one brother, Frank.

Melvin C. Millet spent the first twenty-one years of his life in Sumner Township, attending district school and working on his father's farm. In his twenty-second year, determining on professional education, he began two years of study at the Winona Teachers College, on completion of which he taught district school one year. In 1892, on the advice of his uncle, Frank W. Millet, of Rochester, and with the encouragement of Dr. Rollo C. Dugan, of Dover, Olmsted County, he read medicine for one year with Dr. Dugan and accompanied the doctor on country rounds, both as driver of the horses and as clinical observer. In the autumn of 1892 he entered the medical school of the University of Minnesota, from which he was graduated with high honors in June, 1895; he was licensed by examination in Minnesota on June 11, 1895, receiving certificate No. 529 (R).

The scene of Dr. Millet's first medical practice was Dover, a typical New England village set down in the Middle West, the opening having been held for him by Dr. Dugan, who had removed to Eyota in 1892, when Dr. A. W. Stinchfield left Eyota to join the Drs. Mayo in Rochester. Dr. Stinchfield has been quoted as saying that the community was "too rascally healthy" to make Dover a profitable location for medical practice and so Dr. Millet found it. After a year and a half he joined his old friend and college classmate, Dr. Milan J. Hart, who had been a Dover boy, in partnership in Le Roy. In late 1898 the Drs. Mayo, Graham and Stinchfield invited Dr. Millet to join them as resident physician at St. Mary's Hospital, in Rochester, and in November of that year he became a member of the staff.

A man of fine character and intellect, warm and sympathetic humor and sound training, Dr. Millet soon became one of the physicians in charge, and in the few remaining years of his life achieved a record of sincerity of purpose and scientific accomplishment. Although one of his first and least congenial tasks at St. Mary's Hospital was to record operative findings, with clinical notes, in the huge ledgers then used as case books, it was his diagnostic ability together with his knowledge of physiologic chemistry and his skill in the technic of gastric analysis that had brought him to the attention of the Mayo group. In Rochester he not only continued his already notable work in analysis of gastric contents but also made a study of gastric ulcer and its differential diagnosis. Concurrently, in Dr. Millet's original work the section on urology of the potential Mayo Clinic had its beginning: he studied the possibilities of exact diagnosis in renal disease and was one of the earliest cystoscopists to use and advocate the direct-view cystoscope and was the first to apply the principles of a water medium in this type of cystoscope. Until

a few months before his death he did all of the cystoscopic work, setting the high standard that afterward was maintained. His scientific papers, particularly those on renal disease and cystoscopy, attracted attention throughout the country and were perhaps the most precise and comprehensive to come from Rochester at that time. He had special interest in the diseases of children. Although Dr. Millet died before a formal section on pediatrics had been established in the clinic, he has been credited, with Dr. Henry S. Plummer (his second cousin), with recognition of changes that were coming and that should come in the treatment of the diseases of children; reminiscences preserve some of the comments of these two men on the subject. Dr. Millet still is recalled with affection and esteem for his devotion to his patients, especially to the little children in the wards. It is worthy of note that this man of practical background often said that the farming communities of the Northwest were the backbone of the group practice that soon was to be called the Mayo Clinic.

Dr. Millet became a member of the Southern Minnesota Medical Association in 1895, of the Olmsted County Medical Society in 1896 (once its secretary), the Minnesota State Medical Society in 1899 and soon afterward of the American Medical Association.

On June 12, 1901, Melvin C. Millet was married to Mary A. Frick, of Minneapolis, a daughter of Mr. and Mrs. Thomas W. Frick of that city. Dr. and Mrs. Millet had one son, Roscoe Frick Millet, who was born in Rochester on May 30, 1905.

When Dr. Melvin C. Millet died at his home in Rochester from Bright's disease on May 7, 1907, in his thirty-ninth year, his brilliant professional career had measured only twelve years. In his death the medical profession sustained an incalculable loss. Dr. Millet was survived by his wife, his son and his parents; two sisters, Rose Millet (Mrs. McGhie) of Fillmore County, and Roby Millet (Mrs. Austin) Kiser, of Glendive, Montana; and his brother, Frank Millet, of Salem, Oregon. Mary Frick Millet was married in 1911 to John L. Magaw, of Rochester; Mr. Magaw died in 1926. In 1950 Mrs. Magaw continued to make her home in Rochester.

Roscoe F. Millet followed in his father's profession and was graduated in 1930 with the degree of doctor of medicine from Northwestern University. He was a fellow on the Mayo Foundation, in Rochester, from July, 1930, to July, 1934. He was married to Lael Shea on October 9, 1934; Dr. and Mrs. Millet have two daughters, Margaret and Mary. Licensed in Illinois in 1938, Dr. Millet has practiced in Macomb, Illinois, since 1942. During World War II he was a lieutenant colonel on duty at the Mayo General Hospital at Galesburg, Illinois.

George Wilbur Moore (1870-....) was the thirteenth appointee, as an assistant physician, to the staff of the Second Minnesota Hospital for Insane, at Rochester, Olmsted County. He came as an intern shortly after his graduation in June, 1892, from the medical school of the University of Minnesota, and when Dr. Eric O. Giere, an assistant physician, left the hospital to enter private practice, Dr. Moore was promoted to assistant physician. Within a week of his arrival in Rochester, by unanimous vote he became a member of the Olmsted County Medical Society. On his leaving the hospital in July, 1893, he was succeeded on the staff by Dr. Cyrus E. Eby.

Born at Moore's Hill, Indiana, on August 8, 1870, George Wilbur Moore was the son of Benjamin Franklin Moore and Florence Virginia Wilbur Moore. In

boyhood he came with the family to Minnesota. He was graduated from the Central High School, Minneapolis, the University of Minnesota, and subsequently took postgraduate work at the Bellevue Hospital Medical College, New York. On leaving Rochester in 1893 Dr. Moore practiced medicine and surgery six months in Minneapolis before settling in Hatton, Traill County, North Dakota, where he remained three years.

From 1896 into 1934 Dr. Moore was in active medical practice in Hopkins, Hennepin County, Minnesota. On his retirement, on his birthday in 1934, the city and community of Hopkins honored him as a beloved physician and representative citizen. In 1946 he continued to make his home in Hopkins: a member of county, state and national medical associations; a Republican and past mayor of the city; long a worker for conservation of the forests and wild life of the state; a member of the Minnesota State League of municipalities, and of fraternal organizations, among them the Masons, Knights of Pythias and the Benevolent and Protective Order of Elks. His hobbies have been floriculture, gardening, fishing, hunting and travel.

Dr. Moore was married on June 27, 1894, to Charlotte E. Bell, of Minneapolis; of this marriage there were two sons, John Wilbur and Richard Watts Moore. A second marriage took place on February 22, 1906, to Emily Josephine Yeager, of St. Paul; there was one child of this marriage, George Wilbur Moore. This son and John Wilbur Moore were not living in 1946.

Frederick Richard Mosse (1855-1920) was for nearly fifty years a highly respected citizen and physician of Rochester, Olmsted County, and for many years of that period county coroner and city health officer.

Born near Sun Prairie, Dane County, Wisconsin, on November 1, 1855, Frederick Richard Mosse was the son of Ira Mosse and Eliza Love Mosse. He received his early education in the district school and the village school of Sun Prairie, in the latter of which he came under the tuition of Ellen Sabin, later the head of Milwaukee-Downer College, who helped and encouraged him. At the age of thirteen years he matriculated at the University of Wisconsin, from which he was graduated in 1874 with the degree of bachelor of philosophy. After a few months of study under Drs. Bowen and Ingman, of Madison, in 1874 he entered the Hahnemann Medical College and Hospital of Chicago. In 1876, when the Chicago Homeopathic Medical College was founded by a group of physicians who had withdrawn from the faculty of Hahnemann, he transferred to the new school, and from it, in 1877, received the degree of doctor of medicine. In later years he took postgraduate work at Rush Medical College and the Chicago Policlinic.

Immediately after graduation, in March, 1877, Dr. Mosse began practice in Rochester, with an office in the Graham Block on Broadway. After a few weeks he entered partnership with Dr. W. A. Allen, in offices in the Leland Block, at Broadway and Third Streets, a location that he retained although the partnership was dissolved on July 1, 1879.

In November, 1877, Dr. Mosse was elected coroner of Olmsted County, a capacity in which he served until 1910, with the exception of two terms, 1881-1882 and 1895-1896. In 1878, as city health officer, he began his active career in furthering public health: as secretary of the city board of health, 1883-1886; city health officer, 1887-1897; and member of the state board of health. For many years he was examiner for the Northwestern Life Insurance Company of Mil-

waukee and for the Travelers Life and Accident Insurance Company of Hartford, and he served a considerable time on the local board of the United States Bureau of Pensions.

Dr. Mosse was licensed in Minnesota on November 24, 1883, under the medical practice act of that year, receiving certificate No. 399 (H). Although in earliest years he practiced general medicine and surgery, he soon concentrated on internal medicine. As were his contemporaries, he was called on for special attention to catarrh, which he treated with atomizers, and to tuberculosis, for which, in the eighties, he used Bergeron's method of treatment. Soon after 1900 he became a member of the Southern Minnesota Medical Association, the Olmsted County Medical Society (on the proposal of Dr. Christopher Graham), the Minnesota State Medical Association and the American Medical Association.

A cultured, studious man, Dr. Mosse had a comprehensive library, was interested in collecting fine china, Indian baskets and pottery, and in growing beautiful flowers. He was a Republican, a charter member of Beta Theta Pi fraternity, an active member of the Knights of Pythias, and of the Congregational Church, and he was several times president of the Men's Sunnyside Club of Rochester. In the pre-automobile years of his widespread practice, from Rochester to Pine Island and to Chatfield, he kept sixteen horses, some of which were of racing stock, although most of them were sturdy roadsters. When roads were heavy or when epidemics of disease were current in the countryside, he sometimes employed a driver, but as a rule he preferred to handle the reins himself.

On January 12, 1881, Frederick R. Mosse was married to Flora L. Hurd, a native of Canada and daughter of Moses Hurd, who was born in Oneida County, New York, and Lavinia Hall Hurd, born in St. Catherine's, Ontario; Mr. and Mrs. Mosse came in 1856 to Rochester. Mr. Hurd was long a business man and civic officer of the community; he and his wife both died in 1892. Flora Hurd Mosse was a talented musician, prominent in the social and musical circles of the city. Dr. and Mrs. Mosse for many years, after 1888, made their home in their handsome brick house on Franklin Street. They had one child, Frederick Hurd Mosse.

Dr. Mosse died at his home on December 26, 1920, in the fiftieth year of his professional career. Reliable, conservative, kind, he has been characterized as always "there"; his patients never left him. He was survived by his wife, who died in 1934, and his son. Frederick Hurd Mosse, an architect of Rochester, was married to Inez Thompson, of Preston, Minnesota; Mr. and Mrs. Mosse have one daughter, Elizabeth Anne. During World War II Mr. Mosse served three years with the United States Army Engineering Corps.

Leland H. Munger, born in 1857, a graduate of the Medical College of Missouri in 1879, came from Stearns County, Minnesota, to Eyota, Olmsted County, in the spring of 1881 and established his home and office in a building opposite the schoolhouse. In commenting on the arrival, the *Rochester Post* stated that he had had a degree of experience in the profession that should recommend him to the people of that vicinity.

After a few months in Eyota Dr. Munger went to St. Charles and then to Winona, both in Winona County. Evidently he returned to Stearns County, for when he received state license No. 471 (R), on December 28, 1883, he was living in Fairhaven. Although the year has not been learned, sometime between 1890 and 1895 he again joined the medical profession of Winona and became a member

of the Winona County Medical Society, and of the state and the national medical associations. His name appeared in the directory of the American Medical Association for the last time in the edition of 1912.

William Netter (1853-1933), a graduate of Rush Medical College in 1877, came to Rochester, Olmsted County, as physician and surgeon in the summer of 1878, and for his first few months in the city had office space with Dr. W. W. Mayo on Broadway. Early in 1880 Dr. Netter went abroad for a year's professional study in Munich and Paris, and on his return he again practiced in Rochester until March, 1882, when it was announced that he was removing to Minneapolis.

In notes on early decades of medicine in Winona County, however, it was stated that Dr. William Netter, from Rochester, settled in Winona in April, 1882, and also that a William Netter in the eighteen sixties had been engaged in the drug business with Dr. Wedel in Winona. William Netter, of the present sketch, was a boy in his early teens in the late sixties.

During his residence in Rochester the local newspapers mentioned Dr. Netter occasionally in relation to his various activities as practitioner; as member of the Scandinavian Literary Society, before which he occasionally gave declamations; as introducer, at Library Hall, of an atheistic speaker whose subject was "The man and the atheist in the struggle of life."

In January, 1883, the editor of the *Record and Union* of Rochester having received a call from Dr. Netter, commented that the doctor then was engaged in a thriving practice in Le Sueur. Notes on medicine in Nicollet County (unpublished, 1947) indicate that Dr. Netter was in Le Sueur only a few months. In the *Official Register of Physicians of Minnesota* of 1883-1890, Dr. Netter was listed as in St. Paul. According to the directory of the American Medical Association of 1906 he was licensed in Wisconsin in 1903, and there is evidence that from 1903 until his death he was a resident of Milwaukee.

Dr. Netter died at the Evangelical Deaconess Hospital in Milwaukee on July 20, 1933, of myocarditis, aged seventy-nine years.

Dr. Nichols, of uncertain professional rating, whose name appeared often in the newspapers of Rochester, Olmsted County, between 1860 and 1865, was one of the firm of Wheeler and Nichols, and later of Nichols and Cotter, stage proprietors, who ran a line of stage coaches from Brownsville, on the Mississippi River in Houston County, through Rochester and west to Mankato and Blue Earth City. This "doctor," frequently in Rochester, was at one time a resident of Albany, Wisconsin.

George W. Nichols, a graduate of the Vermont Academy of Medicine (Castleton Medical College) in 1861, came with his wife and family to Rochester, Minnesota, in the late summer of 1871 and remained nine years in active general practice. He first had his office and residence combined at the corner of Fourth and Main Streets; in November, 1872, he bought a home on the northwest corner of Prospect and Fourth Streets, where the city post office now stands (1947), and thereafter had his office on Broadway.

The consensus of those citizens of Rochester who recall Dr. Nichols is that he was "a nice man, a good doctor, an all around good fellow," who had an extensive practice. He is remembered as of medium height, rather stout, with brown eyes and light brown hair tinged with gray, and as genial, kindly and reliable. He

and his wife were workers in the Methodist Church. Married in 1864, Dr. and Mrs. Nichols observed their tenth, or tin, wedding anniversary in Rochester on November 1, 1874, when their friends presented them "with everything in the line of tinware." Mention has been observed of two children of the family, a little daughter Edith, and a son who was born in Rochester on July 18, 1872.

Soon after his arrival in Rochester Dr. Nichols was elected to membership in the Olmsted County Medical Society (its secretary, 1874) and became a member of the Minnesota State Medical Society at the fourth semi-annual meeting, which was held at Rochester on June 11 and 12, 1872. In the autumn of 1874 he was elected coroner of Olmsted County and was still in office when he left the city in June, 1880; he was replaced as coroner by Dr. E. T. Sedgwick. Dr. Nichols was a county physician, also, and from April, 1875, into 1880 he was a member, sometimes the secretary, of the city board of health. He was active in the Independent Order of Odd Fellows and in Ashlar Lodge No. 23 of the Ancient Order of United Workmen; in January, 1878, as a retiring officer of the latter society, he was the recipient of a handsome goldheaded cane.

In July, 1878, the *Rochester Post* described in detail Dr. Nichols' new carriage: "A Dexter side-spring phaeton with a roomy top; a suitable box beneath the seat will accommodate the side curtains and the useful rubber lap blanket. On the dash, directly in the center is firmly fixed a physician's lamp with a powerful reflector of an improved design, calculated as a light unto the doctor as he meanders over countless mudholes. The carriage is well built, and judging from the short whirl we took in it behind the doctor's fiery horse Dan it is as easy riding a vehicle as we have seen in many a day." One of his experiences on a country trip in that period catches the imagination: Three miles south of Rochester, it was recounted, the doctor ran on a wolf that was tracking a deer; "the doctor killed the wolf, but got bitten."

Having become interested in Dakota lands, Dr. Nichols in 1879 bought a large farm, sold his Rochester home, and in June, 1880, left with his family for Wahpeton, Dakota, and Breckenridge, Minnesota, east of Wahpeton across the Red River. Early in 1883 he removed from Wahpeton to Minneapolis; there his daughter, aged seven years, died. A few months later Dr. Nichols removed to Belle Plaine, Scott County; on December 31, 1883, when he received his state license, No. 646 (R), he was living in St. Paul. As listed on the roster of the state medical society, in 1887-1891 he was in Merriam Park; 1892-1895, in Wood Lake, Yellow Medicine County; in 1896-1902, in Milaca, Mille Lacs County. For an unverified time he was in Hinckley, Pine County. In 1902 he was on the honor roll of the society, of physicians who for twenty-five years or more had been members of the organization. After 1902 Dr. Nichols' name did not appear on the roster, nor was it included in the first issue of the directory of the American Medical Association, which was compiled in 1905-1906. It is assumed that around 1902 Dr. Nichols removed to California, where his death occurred in September, 1908.

During Dr. Nichols' residence in Rochester there appeared in the city newspapers an occasional mention of a Dr. O. O. Nichols; research has proved that the name was misprinted and that the notes referred to Dr. G. W. Nichols.

(To be continued in the May issue.)

President's Letter

RURAL MEDICAL CARE

DURING the past two years, numerous inquiries have reached the University of Minnesota Medical School, as well as the Minnesota State Medical Association, regarding the number and distribution of doctors in rural districts and the number of students accepted for enrollment in the medical school. Many inquiries have also been directed to legislative groups.

The primary function of the University of Minnesota Medical School, according to Dean H. S. Diehl, is the education and training of physicians to provide the best possible medical care and public health services to the people of Minnesota. Dr. Diehl made this statement in a recent report to the Committee on University Relations of the Minnesota State Medical Association.

Dr. Diehl stated that the number of students accepted for admission to the medical school is determined by the faculty of the school and is based entirely upon their judgment as to the number that can be adequately trained with the facilities, the staff, and the budget available. No medical organization has ever attempted to exert any influence to restrict the number of students, Dr. Diehl pointed out. He also felt that with present facilities of the medical school, the ideal class would be about 100 students. However, he revealed that this number has been increased voluntarily to 125 students, to meet increased demands, entailing expansion of facilities and staff.

More Doctors Graduated

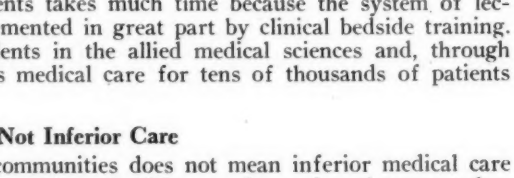
The number of physicians graduated has increased more rapidly than has the population of the state, and, in 1950, in Minnesota there was 20 per cent more doctors per unit of population than there was in 1930. At the present time there is one doctor for every 735 people.

The training of medical students takes much time because the system of lectures and books has been supplemented in great part by clinical bedside training. The University also trains students in the allied medical sciences and, through the University hospital, provides medical care for tens of thousands of patients annually.

Not Inferior Care

Fewer physicians in smaller communities does not mean inferior medical care for those people. Naturally, with modern facilities as advanced as they are today, people can go to a physician's office, clinic or hospital with much greater ease and less time than the old country doctor could go five miles to see a patient. And today's patient also has the advantage of accumulative medical knowledge—the best in the world.

Dr. Diehl explained that the University has voluntarily increased its capacity to enroll medical students and is working now on a plan to accelerate its program further. On a population basis, compared with other states, Minnesota has more than its share of physicians—3,886 is the actual figure, and Minnesota's share of the nation's 178,000 practicing physicians would be only 3,560. Also, of the 6,000 physicians graduated annually, Minnesota's share would be 120—Minnesota with 125 is more than keeping pace with the need, and is constantly striving to improve this excellent record.



President, Minnesota State Medical Association

Editorial

CARL B. DRAKE, M.D., *Editor;* GEORGE EARL, M.D., HENRY L. ULRICH, M.D., *Associate Editors*

STATE MEETING

THE program of the ninety-eighth annual meeting of our State Medical Association to be held in Rochester, April 30, May 1 and 2, appears in this issue. While the program contains no innovations the program represents the evolutionary result of nearly a century of experience in the holding of medical conventions. We are inclined to be complacent when confronted by the scientific exhibits, the colored cinema, the antibiotic and the advances in diagnosis and operative treatment of heart and lung diseases. Imagine the reaction of our predecessors who attended our first meeting ninety-seven years ago were they able to attend this year's meeting.

The Mayo Civic Auditorium is well adapted for the general and sectional meetings and the Mayo Foundation House for the Round Table discussions. Those attending the convention will be the guests of the Olmsted-Houston-Fillmore-Dodge County Medical Society on Monday evening at the Variety night open house. The annual banquet is scheduled to be held at Valencia, a mile north of the city on Highway 52 on Tuesday evening. Dr. John W. Cline of San Francisco, president elect of the A.M.A. and a forceful speaker, will address the banqueters following the address by Dr. J. F. Norman, president of our State Medical Association.

A visit to Rochester should include the Rochester Public Health Center, open each afternoon and the second annual Art Exhibit, sponsored by the Minnesota Physicians Art Association.

The annual meeting of the M.S.M.A. is each year the largest held in the state. The programs are usually well worth while and this year's program is no exception. The meeting affords an unsurpassed opportunity to meet one's professional friends and acquaintances as well as to add to one's scientific knowledge.

LACK OF PHYSICIANS FOR VETERANS HOSPITALS

THE FACT that two new Veterans Hospitals in West Virginia, which cost the taxpayers $12,000,000 and have a capacity of 4,000 beds, have been unoccupied the past year because of a lack of physicians, has had considerable publicity of late in the press. Editorial comment has varied.

One editorial which appeared in a Minnesota paper attributed the lack of physicians to an overall shortage of physicians in the country and blamed this lack on the attitude of the AMA in opposing federal subsidy for the expansion of the medical schools. The statement has been made repeatedly that there is a scarcity of physicians in the country. There has been, for the most part, in recent years little evidence of a shortage of physicians. There are, as a matter of fact, more physicians in relation to the population in the United States than in most, if not all, other countries. In the various states, the number of people for each physician are: California 639; Connecticut 612; Illinois 660; Massachusetts 538; New York 475; Michigan 914; Minnesota 718; North Dakota 1000; Tennessee 1000. This is because the medical schools of the country have been increasing their yearly output of physicians over the past twenty years from 2,680 in 1920 to 5,553 in 1950—more than double, in fact. The accelerated program of the medical schools during the World War II years added an estimated 5,000 or 6,000 additional graduates. Of course, with the resumption of mobilization and war status there is now a scarcity of everything, including medical school graduates. To meet the abnormal need for more doctors, the medical schools are seriously considering the resumption of the accelerated medical school program on a national basis.

It is true that the medical profession is strongly opposed to federal subsidy of the medical schools. Federal subsidy means federal control and a step towards socialism.

As to the real reason for the lack of medical personnel for the two VA hospitals in West Vir-

ginia, General Hawley and Dr. Paul Magnuson and others not associated with the Veterans Administration have stressed the importance of locating VA hospitals near medical centers and centers of population. The building of VA hospitals near medical centers and placing medical care under the supervision of medical schools as was done in Minnesota and taking medical care out of politics have resulted in the provision of first-class care for the veterans. Allowing political pressure to influence the location of VA hospitals and building hospitals in spots isolated from centers of population have proven disastrous. Following World War I a VA orthopedic hospital was built out West distant from civilization and could never be used—reason, lack of professional personnel. The lesson was not learned. Not only were these two hospitals built in West Virginia but another was built in Wisconsin, ignoring the lesson which should have been learned. Trying to make the AMA the scapegoat for this inexcusable waste of the taxpayers' money just will not succeed.

As we have previously pointed out, the present law provides for the care of veterans by the Veterans Administration for disabilities not service-connected, providing beds are available and the veteran states he is unable to provide medical care for himself. As a result, 85 per cent of veterans in the veterans hospitals are being treated for disabilities in no way service-connected. The VA facilities are without doubt more than sufficient for the present care of service-connected disabilities without these unmanned hospitals in West Virginia and Wisconsin. This does not mean that the building of hospitals, which it should be known in advance cannot be staffed, is not reprehensible.

HUMAN BRUCELLOSIS

HUMAN BRUCELLOSIS continues to be a confusing clinical problem. Diagnosis, except in the acute phases of the disease, is often difficult to establish with certainty. Therapy of acute brucellosis with the newer antibiotics without doubt controls the acute signs and symptoms of the disease and markedly reduces the incidence of complications. However, the rather high relapse rate, either clinical, bacteriological, or both, indicates that an effective therapeutic agent, which will eradicate the causitive organism from the body tissues, is not yet available. In this regard it would appear that combined therapy such as aureomycin plus either streptomycin, or dihydrostreptomycin, may be more effective than any one antibiotic alone.

The incidence of human brucellosis is related directly to the incidence of the disease in domestic animals. Since brucellosis, except for laboratory infections, is transmitted from infected animals to man, the human disease is most commonly seen in farmers, veterinarians, packing house workers, and individuals consuming unpasteurized dairy products. Physicians in endemic areas now suspect the disease in those patients with potential exposure to infection who manifest chills, fever, weakness, malaise and generalized aches and pains. In such cases, a diagnosis of brucellosis may not be difficult to establish. The majority of patients with acute infections will have an elevated agglutinin titer above the questionable 1:40 or 1:80 range and many will have positive blood cultures if careful, frequent bacteriological studies are made. It is, however, in the cases of so-called "chronic brucellosis" with prolonged, vague, poorly defined symptoms, little or no fever, and few or no remarkable physical findings that the questions of a correct diagnosis and the best therapy most often arise. It would appear that too often patients are diagnosed as having "chronic brucellosis" on the basis of a positive skin test or a questionably significant agglutinin titer. As a general rule, a diagnosis based on these findings alone without other more definite evidence is, at best, subject to considerable doubt. On the other hand, it must be recognized that a few patients who have had bacteriologically proved brucellosis may continue, after treatment, to manifest the signs and symptoms of "chronic brucellosis" for months or even years without clear-cut laboratory evidence of active disease. In many of these cases, bacteriological studies are repeatedly negative and the agglutinin titer may be low. Are, then, the symptoms in such cases due to brucellosis?—or are they related to other causes such as an incidental or associated neurosis?

At the present time, there is no good objective basis upon which to formulate the correct answer to these important and fundamental questions. The clinician must rely upon his good judgment and a critical evaluation of each case—and accept the fact that his final conclusion may often be wrong.

If this large area of uncertainty prevails in the

correct diagnosis of "chronic brucellosis," it is not surprising that so much argument is heard as to the relative merits of the various types of therapy for "chronic brucellosis." Unbiased, scientific evaluation must certainly doubt the efficacy of vaccine therapy. On the other hand, antibiotic therapy in "chronic brucellosis" has too often been of questionable benefit. It seems fair to state that at the present time there is no specific therapy for "chronic brucellosis" which can be depended upon to produce good results.

All of these problems relating to the diagnosis and treatment of human brucellosis clearly demonstrate the need for much more fundamental investigation. The necessity for control of the disease in animals is self-evident. More specific and discriminating diagnostic procedures would be extremely helpful. Much more knowledge pertaining to the fundamental disease process in the human body must be accumulated. Finally, continuing efforts must be made to find a therapy which will get at and eradicate the infection from the body tissues. Only when these things have been accomplished can human brucellosis be considered as one of the conquered infectious diseases.

—J. M. S.

BOVINE BRUCELLOSIS

BOVINE brucellosis control and eradication on an individual herd basis began in Minnesota many years ago. However, in 1934 and 1935, during the drouth period, this program received a marked impetus when the elimination of diseased animals became an important part of the cattle reduction program of that period. Large numbers of herds were tested in this interval with the serum agglutination test for brucellosis and many infected animals sold for slaughter.

In 1939 a state law provided for bovine brucellosis control on a county area basis. For the area control plan to become effective in a county, at least 67 per cent of the cattle owners must sign a petition requesting the area plan of control. If the petition requirements are satisfied, all cattle owners in the county are required to submit their cattle to the serum agglutination test which is conducted at state and Federal expense. All infected herds so disclosed are placed under quarantine and retested at intervals of thirty to sixty days until they pass one negative test. After three successive negative tests such herds are considered as brucellosis free.

The owner of an infected herd may choose one of the three following plans of eliminating the disease: (1) Elimination of the infected animals for slaughter. (2) Isolation or segregation of the infected animals as a separate unit from the negative animals under suitable quarantine and elimination for slaughter of such animals as early as feasible. (3) If the farmstead and pastures are such that suitable quarantine measures such as double fencing of pastures of adjoining farms and fencing animals away from watercourses and drainage ditches will provide necessary protection to neighboring herds, the infected animals may be retained temporarily on the premises and a program of calfhood vaccination with *Br. abortus* strain 19 followed to provide replacements for infected animals as early as possible.

The first plan, elimination by selling for slaughter, is the most feasible plan for a high percentage of infected herds. On the average, approximately 20 per cent of the animals in infected herds are found to be positive to the agglutination test. Approximately 75 to 80 per cent of the infected herds have less than 20 per cent infection, and over 50 per cent have less than 10 per cent infection. Of the infected herds approximately 70 per cent are negative to the first retest if the infected animals disclosed earlier have been removed. Thus, in a high percentage of the infected herds the disease is not extensive nor is the infection spreading rapidly. Therefore elimination of the infected animals is the most economical and practical method of providing satisfactory protection of the negative animals.

The second plan, segregation of infected animals from the remainder of the herd, is feasible on but a small percentage of premises but is employed occasionally where facilities permit and it is desirable to retain valuable lines of breeding.

The third plan, temporary retention of infected animals with calfhood vaccination, is the more practical plan in the more heavily infected herds or where there is good evidence of a rapid spread of the disease. Elimination of the infected animals is not feasible economically in many such herds. Calfhood vaccination with strain 19, a viable vaccine of low virulence, does not induce immunity in the common sense of the term, but does produce a significant increase in the resistance. By raising vaccinated replacements the infected animals may be eliminated usually in a period of three to five years.

At the present time, twenty-three counties largely in the northern and western parts of the state are certified as modified brucellosis free (less than 5 per cent infected herds and less than 1 per cent infected cattle). In addition, ten counties are in the process of certification (one or more county-wide tests completed). The first county-wide agglutination test in the thirty-four counties thus far under the area control plan disclosed 97.8 per cent of the cattle and 89 per cent of the herds to be free of brucellosis. For the remainder of the state it is estimated that approximately 95 per cent of the cattle and 75 per cent of the herds are free of the disease.

The chief value of the area plan of control is that it provides very valuable protection for the negative herds in the county by placing the infected herds under quarantine until the infection can be eradicated. The eradication of the disease from the infected herd is accomplished by the particular plan of procedure best suited to the status of the disease within the herd. As the area control plan is extended to the remainder of the state it is anticipated that bovine brucellosis will be reduced eventually to the very low level now experienced for bovine tuberculosis.

—M.H.R.

ARE ANTICOAGULANTS ALWAYS INDICATED IN ACUTE CORONARY INFARCTION?

CERTAIN published series have shown that the incidence of embolic phenomena, if not mortality, in patients treated with anticoagulants, is definitely lower than in control series in which they are not used. Does this mean, therefore, that the physician is not furnishing the proper and accepted treatment if he omits the use of anticoagulants in these cases?

We venture the opinion that all cardiologists do not treat all patients suffering from acute myocardial infarction with anticoagulants irrespective of the severity of their symptoms. There are several reasons why this medication is at times omitted. The administration of Heparin or Dicumerol is not without some hazard as regards hemorrhage, particularly. The daily puncturing of a vein is more or less disturbing to a more or less ill patient. The cost to the patient is something to take into consideration in many cases.

An analysis of the question of whether to use or not to use anticoagulants recently appeared. In brief, the authors* conclude from an analysis of 424 cases, in which no coagulants were used, that anticoagulants may be dispensed with in good risk patients—that is, in those who (1) have not had a previous infarction; (2) do not have intractable pain; (3) do not have an extreme degree or persistence of shock; (4) do not have significant enlargement of the heart; (5) do not have a gallop rhythm, congestive heart failure, auricular fibrillation or flutter, ventricular tachycardia or intraventricular block; (6) do not have diabetes or other complicating serious disease. The age of the patient does not seem to affect the treatment or prognosis. Of the 204 patients who during the first twenty-four hours of hospitalization lacked any of these indications of being poor risks, only five died, a mortality of 2.45 per cent; and only two of the five could possibly have been saved by anticoagulant therapy. The incidence of thromboembolism in this group of 204 patients was only 0.98 per cent. In contrast were the remaining 220 of the group classed as poor risks, in which the mortality was 44.5 per cent and the incidence of thromboembolic complications was 7.7 per cent.

Statistically, then, the hazard incurred in not using an anticoagulant in the good risk patients is probably no greater than the risk incurred by using the anticoagulant. One's decision to dispense with anticoagulants in "good risk" patients, therefore, receives the approval of these authors.

*Russek, Henry T.; Zohman, Burton L.; White, La Vere G. and Doerner, Alexander A.: Indications for Bishydroxycoumarin (dicumerol) in acute myocardial infarction. J.A.M.A., 145:390, (Feb. 10) 1951.

IMPRESSIONS FROM EUROPEAN NEUROSURGICAL CLINICS

(Continued from Page 338)

ly and accurately any inclination to a state of shock as might occur with blood loss and surgical trauma.

This entire survey which occupied two months was quite revealing as to the amazing uniform progress displayed in the European Neurosurgical Clinics. Each hospital was a busy and serious place. It was most gratifying to learn how closely related these centers are particularly in the friendly relationship of the medical staffs. The impression gained during this tour was that the personnel of the European teaching hospitals reflected in their work a firm hope for a secure future.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

CONFERENCE DISCUSSES RURAL HEALTH NEEDS

Latest needs and accomplishments in the broad field of rural health were discussed and evaluated at the recent Sixth National Confernce on Rural Health, held in Memphis, Tennessee, with leaders in the field presenting their views of the problem.

Discussing the National Rural Health Program, Dr. F. S. Crockett, Chairman of the Committee on Rural Health of the American Medical Association, declared that the program has not developed solely as a doctor's plan, stating that "none has claimed a preferred or dominant position in this." Stressing the need for active cooperation among all groups interested in and affected by rural health considerations, Dr. Crockett felt that "you cannot decide a truth on a 60 to 40 per cent basis."

Dr. Crockett reported to the large attending audience that at the present time there are 1,190 health councils throughout the country. This averages about one in every three counties of the nation.

He felt, however, that such a report was not entirely accurate or complete because no one can agree on just what a health council is or what its duties and responsibilities should be. Its function, Dr. Crockett said, "should be largely advisory in nature." It should have medical advisers and should concern itself with *all* the problems of the public's health.

No Remote Control

Health, on both an individual and a community-wide level, is like salvation, it comes from within," according to Dr. Crockett, who stated that the individual community needs cannot be determined by remote control.

Program's Meaning Explained

Aubrey D. Gates, Field Director for the Committee on Rural Health of the American Medical Association, explained the meaning of the national rural health program in terms of the vast difference between medical care and health. Definitions of these often-confused terms, said Gates, will clear up many facets of health problems throughout the nation. He defined medical care as a purchasable service, while health is a personal responsibility and, in itself, is not really purchasable.

Changes in medical techniques have brought about many different problems in rural health. In some cases, medical science, through its rapid advance in ridding the world of some maladies, has actually handicapped itself by ridding itself of cases by which to teach newcomers! For instance, now it is almost impossible to find a pellegra patient with which to teach medical students about the disease. It has been several years since doctors in the South have found a case of real malaria. However, the flexibility and adaptability of modern medical science has progressed to such an advanced stage that it can effectively cope with new and different problems in rural health, as well as other related fields, as they appear.

County Council Discussed

Dr. E. K. Yantes of Wilmington, Ohio, told the conference of the problems faced and the progress made by his county health council. He said that the council was composed of 41 different organizations and community groups which were active, but separately so, in the county.

The achievements of this group were listed by Dr. Yantes, who felt that those achievements were only possible through a co-ordinated effort on the part of the entire county. By looking into the county's own health situation and appraising the needs, it was able to go ahead with a reorganization of the health department. The Council also made a health survey of the community. Each worker had 10 families to visit. The health program was publicized by means of banners across

main streets, posters, newspapers and other publicity.

The results were tabulated in map and chart form, and made available for further study and improvement of conditions. An immunization program was carried out in which one-third of the community was immunized and 7 per cent vaccinated, with 42 per cent of the pre-school children protected against diphtheria. In the adult population, only the ex-servicemen were protected against tetanus. The survey showed that 75 per cent of the pregnancies were carried to full-term, and 60 per cent of the mothers had prenatal care. The report revealed that undulant fever was the biggest problem.

Among other achievements of the Council, Dr. Yantes stated that a county-wide milk ordinance was passed, education and progress on swine brucellosis was done, immunization and vaccination was made compulsory in the schools, and the first well-baby clinics and prenatal schools in the area were established.

Health Everybody's Job

H. E. Slusher, Chairman of the Health Committee of the American Farm Bureau Federation, outlined the broad view of the rural health situation. He declared that the realization has come that people must be reached where they live, that health is no longer completely the doctor's job, but should be the personal responsibility of every person who is part of any town or community in the country. Slusher said that "before the turn of the century, health was a doctor's job. Doctors are doing a wonderful job of patching us up and keeping us going," but now it is a broader field of community, county, state and national responsibility.

MINNESOTA HOLDS RURAL HEALTH DINNER

In conjunction with the annual County Officers Meeting, held in Saint Paul on March 3, the Minnesota State Medical Association inaugurated its first rural health dinner, to bring together farm and medical leaders to talk over the remaining problems in Minnesota rural health. The stated purpose of this gathering:

". . . will be the forerunner of annual statewide rural health conferences, where farm and medical leaders may work together to solve the remaining problems of rural health, as they have worked together in the past to lay a sound framework for rural medical facilities and health education.

"Through a continuation of the co-ordinated efforts of farmers and doctors, Minnesota will retain and strengthen its record for longer, healthier living."

Distribution Discussed

Speakers at the dinner included Dr. Paul C. Leck, Austin, who reviewed Minnesota's progress and future needs in rural health. Dr. Leck discussed the problem of doctor distribution, stating that "improved roads bring the doctor minutes and sometimes hours closer to his rural patients in the practice of mid-twentieth century medicine."

Dr. Leck stressed the importance of discarding outmoded ideas about doctor distribution before more progress can be made in rural health. He said:

"Economists have come to think in terms of market areas rather than county boundary lines in their studies of the American public—both rural and urban—and it is a concept that we have come to adopt, too. Farm people will follow, for the most part, the economic paths that they have set for themselves. If, within their *trade* area they have doctors and hospitals which offer good medical care, then they are apt to accept this situation as satisfactory, without stopping to think of how these facilities are divided among the counties within the specific trade area. Some of the government planners, of course, are still laying out master plans for health care that call for so many hospitals and doctors per county, but the fallacy of this thinking is clearly evident as we recognize the economic, geographic and population differences of counties even within close range of each other."

Praising rural communities for their work in the rural health field, Dr. Leck lauded them for accepting their share of the responsibility involved.

"For example," he stated, "several small towns have initiated the building of small hospitals, clinics and office buildings which are made available to the physician. This negates one drawback to rural medical practice—the problem of the young doctor who has not the financial capital to provide himself with the equipment and facilities he needs to practice the top grade medical techniques he has learned."

The main speaker of the evening was Franklin D. Murphy, M.D., Dean, University of Kansas School of Medicine, who averred that the rural

(Continued on Page 384)

MINNESOTA STATE MEDICAL ASSOCIATION

Ninety-Eighth Annual Meeting

Rochester, Minnesota

April 30, May 1 and 2, 1951

BUSINESS SESSIONS

SATURDAY, APRIL 28

Hotel Kahler

2:00 P.M.—Council ..... Cafe
6:00 P.M.—Council ..... Cafe

SUNDAY, APRIL 29

Hotel Kahler

8:00 A.M.—Council ..... University Club
10:00 A.M.—Reference Committees ..... Mezzanine
2:00 P.M.—House of Delegates ..... Cafe
8:00 P.M.—House of Delegates ..... Cafe

MONDAY, APRIL 30

8:00 A.M.—Council..... University Club, Hotel Kahler
8:00 A.M.—Committee on First Aid and Red Cross..
Continental Room, Hotel Carlton
12:15 P.M.—House of Delegates.... Cafe, Hotel Kahler

TUESDAY, MAY 1

Hotel Kahler

8:00 A.M.—Council..... University Club
8:00 A.M.—Committees ..... Cafe
Anesthesiology
Child Health
Chronic Illness
Diabetes
General Practice
Heart
Hospitals and Medical Education
Military Affairs
Ophthalmology
Public Health Education
Rural Medical Service
Tuberculosis

WEDNESDAY, MAY 2

8:00 A.M.—Council..... University Club, Hotel Kahler
8:00 A.M.—Committee on Public Policy
Continental Room, Hotel Carlton
8:00 A.M.—Committees ..... Cafe, Hotel Kahler
Cancer
Conservation of Hearing
Fractures
Historical
Hospitals and Professional Relations
Insurance Liaison
Maternal Health
Medical Economics
University Relations
Veterans Medical Service

GUEST SPEAKERS

The State Medical Association is indebted to the following societies and organizations for guest speakers at this meeting:

The Minnesota Department of Health—Obstetric Manikin Demonstrators: Thomas K. Brown, Professor of Clinical Obstetrics and Gynecology, Washington University School of Medicine, St. Louis, Missouri; Gerald W. Gustafson, Professor of Obstetrics and Gynecology, Indiana University School of Medicine, Indianapolis, Indiana; Edward A. Banner, Consultant, Obstetrics and Gynecology, Mayo Clinic, Rochester.

The Minnesota Heart Association—Speaker, H. B. Sprague, President, American Heart Association, Brookline, Massachusetts.

The Minnesota Radiological Society—Speaker, Wendell G. Scott, Associate Professor of Clinical Radiology, Washington University School of Medicine, St. Louis, Missouri, who will deliver the annual Russell D. Carman Memorial Lecture in Radiology.

The Minnesota Society of Clinical Pathologists—Speaker, Paul W. Schafer, Professor of Surgery and Chairman of the Department of Surgery, University of Kansas School of Medicine, Kansas City, Kansas, who will deliver the annual Arthur H. Sanford Lectureship in Pathology.

Northwestern Pediatric Society—Speaker, John A. Anderson, Professor and Head, Department of Pediatrics, Stanford University School of Medicine, San Francisco, California.

Northern Minnesota Medical Association—Speaker, Bram Rose, Associate Professor of Medicine, McGill University Faculty of Medicine, Montreal, Quebec, Canada.

SOCIAL EVENTS

MONDAY, APRIL 30

Luncheons

American Medical Women's Association, Inc., Minnesota Chapter
12:15 p.m., Continental Room Lounge, Hotel Carlton
Make reservations with Dr. Elizabeth Troxil, Veterans Hospital, 54th St. and 48th Avenue So., Minneapolis.
Open to all visiting women physicians.

Minnesota Chapter, American College of Chest Physicians
12:15 p.m., Pine Room, Hotel Carlton

Dinners

Minnesota Chapter, American Academy of General Practice
6:00 p.m., Rochester Golf and Country Club

Minnesota Medical Foundation, Minnesota Medical Alumni
6:00 p.m., University Club Cafe, Hotel Kahler
Presiding: J. F. Norman, President, Minnesota State Medical Association
Greetings: Dean H. S. Diehl; Edwin J. Simons, member, Board of Trustees, Minnesota Medical Foundation; Herman Drill, President, Minnesota Medical Alumni Association; Owen H. Wangensteen, President, Minnesota Medical Foundation
Address: "University Research Tradition: A Centennial Perspective"—Dean Theodore C. Blegen, Graduate School, University of Minnesota

All Minnesota physicians and their wives are cordially invited. Make reservations with Dr. George N. Aagaard, Department of Continuation Medical Education, University of Minnesota Hospitals, Minneapolis

Nu Sigma Nu
6:00 p.m., Pine Room, Hotel Carlton

Special Meeting

Medical Veterans Society of Minnesota
5:00 p.m., University Club, Mezzanine Floor, Hotel Kahler

TUESDAY, MAY 1

Dinners

Minnesota Radiological Society
6:00 p.m., Rochester Golf and Country Club
Minnesota Society of Clinical Pathologists
6:30 p.m., Markay Dining Room
Annual Banquet of Minnesota State Medical Association
7:00 p.m., Valencia

GENERAL SESSION

MONDAY, APRIL 30

Scientific Committee: H. B. SWEETSER, W. E. HERRELL, C. B. NESSA, C. L. OPPEGAARD, M. G. GILLESPIE, W. P. RITCHIE

A.M.
8:30 Visit Scientific and Technical Exhibits .....Auditorium

FRACTURES

9:00 Clinics by Members of the Mayo Clinic Staff .....Auditorium Theater
Symposium on Fractures with Presentation of Cases
Moderator: P. R. LIPSCOMB
"General Principles of Fracture Management"—P. R. LIPSCOMB
"Inter-trochanteric Fractures of the Femur"— W. H. BICKEL
"Fractures of the Elbow Joint"—M. B. COVENTRY
"Fractures about the Ankle Joint"—J. C. IVINS

Intermission

10:15 Visit Scientific and Technical Exhibits .....Auditorium
11:00 "Rehabilitation in Fracture Patients"
Auditorium Theater
WALLACE COLE, St. Paul
HARRY B. HALL, Minneapolis

Afternoon

P.M.
12:15 Obstetric Manikin Demonstration
Chamber of Commerce Dining Room
THOMAS K. BROWN, Professor of Clinical Obstetrics and Gynecology, Washington University School of Medicine, St. Louis, Missouri
12:15 Miscellaneous Luncheons
1:30 Visit Scientific and Technical Exhibits
Auditorium

NEW DRUGS

2:00 Cortisone and ACTH Symposium.....
Auditorium Theater
Moderator: H. F. POLLEY, Rochester
"Physiological and Metabolic Aspects of Cortisone and ACTH"—E. B. FLINK, Minneapolis
"The Effects of Cortisone in Glomerulonephritis and the Nephropathy of Disseminated Lupus Erythematosus"—WYMAN E. JACOBSON, Minneapolis
"Cortisone and ACTH in Hay Fever and Asthma" G. A. KOELSCHE, Rochester
"Cortisone in Periarteritis Nodosa"—R. M. SHICK, Rochester
"Cortisone in the Treatment of Skin Conditions" —L. A. BRUNSTING, Rochester.
"Cortisone in the Treatment of Rheumatic Fever" —H. L. SMITH, Rochester
Summary—H. F. POLLEY, Rochester

3:15 Intermission

Visit Scientific and Technical Exhibits.....
Auditorium
4:00 New Drugs (continued).....Auditorium Theater
"Banthine and Other Drugs in the Treatment Gastrointestinal Disease"—R. N. BIETER, Minneapolis
"Combinations of Antibiotics in Treatment of Infectious Diseases"—W. E. WELLMAN, Rochester
"Radioactive Iodine in Thyroid Disease"—WILLIAM M. MCCONAHEY, Rochester
"Current Chemotherapy of the Leukemias"—TALBERT COOPER, Rochester
5:00 Visit Scientific and Technical Exhibits.....
Auditorium
5:15 Obstetric Manikin Demonstration.....
South Hall, Auditorium
THOMAS K. BROWN, Professor of Clinical Obstetrics and Gynecology, Washington University School of Medicine, St. Louis, Missouri
6:00 Special Dinners
8:30 Variety Night.....Auditorium Theater

SPECIAL SESSION

MONDAY, APRIL 30, 1951

South Hall, Auditorium

P.M.
2:00 Minnesota Chapter of the American College of Chest Physicians
"Coin Lesions of the Lung"—DANIEL L. FINK, St. Paul
"Crushing Injuries of the Chest"—NATHAN K. JENSEN, Minneapolis
"Bronchial Asthma"—ROYAL V. SHERMAN, Red Wing
"Association of Pulmonary Tuberculosis and Carcinoma"—G. A. HEDBERG, Nopeming
W. H. WIERMAN, Rochester
G. G. GRAHAM, Rochester
"Surgery for Diseases of the Heart and Great Vessels"—JOHN W. KIRKLIN, Rochester

GENERAL SESSION

TUESDAY, MAY 1, 1951

Scientific Committee: H. B. SWEETSER, W. E. HERRELL, C. B. NESSA, C. L. OPPEGAARD, M. G. GILLESPIE, W. P. RITCHIE

A.M.
8:30 Visit Scientific and Technical Exhibits.....
Auditorium

PULMONARY DISEASES

9:00 Clinic by Members of the Mayo Clinic Staff..
Auditorium Theater
Four Case Presentations Illustrating Newer Concepts of Diagnosis and Treatment of Pulmonary Diseases
Moderator: H. J. MOERSCH
Participants: S. W. HARRINGTON, J. R. MCDONALD, L. A. WEED, H. W. SCHMIDT

10:15 Intermission

Visit Scientific and Technical Exhibits.....
Auditorium

11:00 "The Present Status of BCG Vaccine"—E. P. K. FENGER, Oak Terrace
"Bronchoscopy and Common Chest Diseases"—PAUL G. BOMAN, Duluth
"Surgical Treatment of Common Pulmonary Conditions"—LYLE A. TONGEN, St. Paul
"Rheumatic Fever—Determination of Activity"—JOHN A. ANDERSON, Professor and Head, Department of Pediatrics, Stanford University School of Medicine, San Francisco, California

Afternoon

P.M.
12:15 Obstetric Manikin Demonstration..... Mayo Foundation House
GERALD W. GUSTAFSON, Professor of Obstetrics and Gynecology, Indiana University School of Medicine, Indianapolis, Indiana
12:15 Round-Table Luncheons
1:30 Visit Scientific and Technical Exhibits..... Auditorium
2:00 Russell D. Carman Memorial Lecture..... Auditorium Theater
Presentation of Speaker—OSCAR LIPSCHULTZ, Minneapolis, President, Minnesota Radiological Society
"Advances in the Radiological Diagnosis of Heart Disease"—WENDELL G. SCOTT, Associate Professor of Clinical Radiology, Washington University School of Medicine, St. Louis, Missouri

ACUTE ABDOMINAL CONDITIONS

2:40 Arthur H. Sanford Lectureship in Pathology.. Auditorium Theater
Presentation of Speaker—JOHN F. NOBLE, St. Paul, President, Minnesota Society of Clinical Pathologists
"Pathology of the Acute Abdomen"—PAUL W. SCHAFER, Professor of Surgery and Chairman of the Department of Surgery, University of Kansas School of Medicine, Kansas City, Kansas

3:15 Intermission

Visit Scientific and Technical Exhibits..... Auditorium
4:00 Acute Abdominal Conditions (continued)..... Auditorium Theater
"Radiologic Aspects"—LEO G. RIGLER, Minneapolis
"Surgical Aspects"—OWEN G. MCDONALD, Duluth
"Urologic Aspects—THEODORE H. SWEETSER, Minneapolis
"Gynecologic Aspects"—JAMES J. SWENDSON, St. Paul
"Summary"—N. LOGAN LEVEN, St. Paul
5:00 Visit Scientific and Technical Exhibits..... Auditorium
5:15 Obstetric Manikin Demonstration.....South Hall, Auditorium
GERALD W. GUSTAFSON, Professor of Obstetrics and Gynecology, Indiana University School of Medicine, Indianapolis, Indiana

6:00 Special Dinners
7:00 Annual Banquet.....Valencia
Presiding: P. A. O'LEARY, President, Olmsted-Houston-Fillmore-Dodge County Medical Society
Introduction of MRS. F. P. MOERSCH, Rochester, President, Woman's Auxiliary
Presentation of Fifty-Club Certificates
Presentation of Southern Minnesota Medical Association Medal
Presentation of Distinguished Service Medal
Presidential Address—J. F. NORMAN, Crookston, President, Minnesota State Medical Association
"The Problems Confronting Medicine in the Immediate Future—JOHN W. CLINE, President-Elect, American Medical Association, San Francisco, California

SPECIAL SESSION

TUESDAY, MAY 1

A.M.
9:00 Minnesota Society of Clinical Pathologists
Tumor Seminar—Little Theater, St. Mary's Hospital
9:00 Minnesota Academy of Ophthalmology and Otolaryngology.....South Hall, Auditorium
"The Retina in Hypertensive Cardiovascular Disease"—ROBERT W. HOLLENHORST, Rochester
"Some Disorders that Affect the Eye and the Central Nervous System"—THOMAS J. KIRBY, Rochester
"Ear Findings in Brain Tumor"—H. A. BROWN, Rochester
"Postirradiated Malignant Lesions of the Face"—JOHN B. ERICH, Rochester

10:15 Intermission

Minnesota Academy of Ophthalmology and Otolaryngology.....South Hall, Auditorium
"The Management of Vasomotor Rhinitis"—JAMES B. MCBEAN, Rochester
"Malignant Tumors of the Nose and Accessory Sinuses"—E. L. Foss, Rochester
"The Management of Anterior Chamber Hemorrhage—H. L. BAIR, Rochester

P.M.
3:15 Minnesota Society of Clinical Pathologists
Tumor Seminar (continued)—Little Theater, St. Mary's Hospital

GENERAL SESSION

WEDNESDAY, MAY 2, 1951

Scientific Committee: H. B. SWEETSER, W. E. HERRELL, C. B. NESSA, C. L. OPPEGAARD, M. G. GILLESPIE, W. P. RITCHIE

A.M.
8:30 Visit Scientific and Technical Exhibits..... Auditorium

CARDIAC AND PERIPHERAL VASCULAR DISEASES

9:00 Clinics by Members of the Mayo Clinic Staff.. Auditorium Theater
Case Presentations Illustrating New Developments in Cardiology
Moderator: T. J. DRY
"Intracardiac Arteriovenous Shunt—Illustrating Dye Concentration Curve Using Ear Oximeter"—J. C. BROADBENT *and* E. H. WOOD
"Atypical Patent Ductus with Cardiac Catheterization Study"—R. L. PARKER
"Coarctation of the Aorta—Surgical Management"—O. T. CLAGETT
"Isolated Pulmonary Stenosis—Pulmonary Valvulotomy"—J. W. KIRKLIN
"Mitral Stenosis—Mitral Commissurotomy"—J. W. KIRKLIN

10:15 Intermission

Visit Scientific and Technical Exhibits..... Auditorium
11:00 "Newer Developments in Anticoagulant Therapy in Vascular Diseases"—N. W. BARKER, Rochester

"Surgical Treatment of Varicose Veins"—LAURENCE D. HILGER, St. Paul
"Diagnostic Pitfalls in Cardiology"—H. B. SPRAGUE, President, American Heart Association, Brookline, Massachusetts

Afternoon

P.M.
12:15 Obstetric Manikin Demonstration..... Mayo Foundation House
EDWARD A. BANNER, Rochester
12:15 Round-Table Luncheons ..... See below
1:30 Visit Scientific and Technical Exhibits..... Auditorium

ALLERGY

2:00 "Physiological Basis of Allergy"—BRAM ROSE, Associate Professor of Medicine, McGill University Faculty of Medicine, Montreal, Quebec, Canada
"Eye, Ear, Nose and Throat Aspects of Allergy"—W. T. WENNER, St. Cloud
"Skin Allergies"—ELMER M. RUSTEN, Minneapolis
"Allergies in Children"—HAROLD F. FLANAGAN, St. Paul
"Allergic Asthma"—L. E. PRICKMAN, Rochester
"Gastrointestinal Manifestations of Allergic Disease"—C. N. HENSEL, St. Paul
"Psychogenic Factors in Allergic Disease"—M. G. FREDRICKS, Duluth

ROUND TABLES

12:15 p.m. Daily

MONDAY, APRIL 30

Chamber of Commerce Dining Room

Obstetric Manikin Demonstration—THOMAS K. BROWN, St. Louis, Missouri

TUESDAY, MAY 1

Mayo Foundation House

"Poliomyelitis and Other Virus Diseases"—JOHN A. ANDERSON, San Francisco
"Common Dermatoses"—JOHN F. SCHMID, Duluth
"Insulin Mixtures and N.P.H."—JOHN R. MEADE, St. Paul
"The Management of Intermittent Exotropia"—THEODORE G. MARTENS, Rochester
"Burns and Frostbite"—MARK B. COVENTRY, Rochester
"Sterility
In the Male"—T. L. POOL, Rochester
In the Female"—MARY ELIZABETH MUSSEY, Rochester
"Post-Partum Hemorrhage"—E. C. SARGENT, JR., Austin
"Rh Factor"—JOSEPH W. GOLDSMITH, St. Paul
"Emergency Blood Transfusions"—T. H. SELDON, Rochester
"Obstetric Manikin Demonstration"—GERALD W. GUSTAFSON, Indianapolis, Indiana

WEDNESDAY, MAY 2

Mayo Foundation House

"Cardiac Emergencies"—MARTIN E. JANSSEN, Crookston
"Radical Treatment of Cancer"—RICHARD L. VARCO, Minneapolis
"Treatment of Spontaneous Subarachnoid Hemorrhage"—G. J. STREWLER, Duluth
"Blood Dyscrasias: Recent Advances"—PAUL S. HAGEN, Minneapolis
"Prostatectomy"—ORMOND S. CULP, Rochester
"Vertigo"—HENRY L. WILLIAMS, Rochester
"The Relief of Pain by Neurosurgical Procedures"—W. T. PEYTON, Minneapolis
"Congenital Gastrointestinal Anomalies"—GEO. C. KIMMEL, JR., Red Wing
"Cytologic Diagnosis of Uterine Neoplasms"—ARTHUR H. WELLS, Duluth
"Obstetric Manikin Demonstration"—EDWARD A. BANNER, Rochester.

SCIENTIFIC CINEMA

Southeast Corner, Arena

Courtesy of
Joseph P. Hackel
MEDICAL FILM GUILD, LTD.
New York City

MONDAY, TUESDAY, WEDNESDAY
APRIL 30, MAY 1 AND 2

A.M.
9:00 ARTERIAL BLOOD PRESSURE—Physics and Measurement
American Heart Association
9:38 CERVICITIS—Etiology—Diagnosis—Treatment
Loyola University Medical School, Chicago, Illinois
10:01 PROBLEMS OF RHEUMATOID ARTHRITIS—Arthritis & Rheumatism Foundation
10:33 ALLERGY—Immunology and Treatment
University of Pittsburgh, Pittsburgh, Pennsylvania
11:24 HYPOTHYROIDISM—Etiology—Diagnosis—Treatment
Massachusetts General Hospital, Boston, Massachusetts
P.M.
12:15 NON-OPERATIVE TREATMENT OF PARANASAL SINUSITIS
New York Polyclinic Medical School, New York City

Intermission

2:00 CERVICITIS—Etiology—Diagnosis—Treatment
Loyola University Medical School, Chicago, Illinois
2:53 URINARY INFECTIONS—Bacterio-Pathology and Treatment
St. Louis University, St. Louis, Missouri
3:31 NON-OPERATIVE TREATMENT OF PARANASAL SINUSITIS
New York Polyclinic Medical School, New York City
3:49 HYPOTHYROIDISM—Etiology—Diagnosis—Treatment
Massachusetts General Hospital, Boston, Massachusetts
CERVICITIS—Etiology—Diagnosis—Treatment (Alternate Film) Loyola University Medical School, Chicago, Illinois
4:40 PROBLEMS OF RHEUMATOID ARTHRITIS
Arthritis & Rheumatism Foundation
5:12 REQUESTS

South Hall Auditorium

Courtesy of
Mayo Clinic

MONDAY, APRIL 30

A.M.
10:15 ACCIDENT SERVICE
British sound film

TUESDAY, MAY 1

P.M.
3:15 EMBRYOLOGY OF THE EYE

Minnesota Academy of Medicine

Meeting of October 11, 1950

The regular monthly meeting of the Minnesota Academy of Medicine was held on Wednesday evening, October 11, 1950, at the Town & Country Club. Dinner was served at 7 o'clock and the meeting was called to order at 8:15 p.m. by the President, Dr. William A. Hanson.

There were thirty-seven members and one guest present.

Minutes of the May meeting were read and approved.

Dr. F. F. Callahan read the following Memorial to Dr. Everett K. Geer. A motion was carried that this be placed in the records of the Academy and a copy sent to the family.

EVERETT KINNE GEER
1893-1950

Dr. Everett Kinne Geer died in his home in Saint Paul on May 3, 1950, following a protracted illness.

Dr. Geer was born in Saint Paul on January 14, 1893, the son of Dr. Ethelbert F. Geer and Helen Hazen Geer. After graduating from Central High School, he attended the University of Minnesota, where he obtained a B.S. degree in 1915 and M.D. degree in 1917. He served his internship in the Minneapolis General Hospital in 1916-1917 and did postgraduate work in the Trudeau School for Tuberculosis at Saranac Lake, New York.

In the first World War, he did his tour of duty as a Lieutenant in the Medical Corps of the U. S. Navy.

In 1918, Dr. Geer married Olive Barnett Lewis, who survives him, as well as a daughter, Mrs. John Donohower, and a son, Thomas. His eldest son, Everett K. Geer, Jr., was killed in action in World War II.

Dr. Geer held many important positions in his special field of training. He was Chief Physician of the Tuberculosis Division at Ancker Hospital in St. Paul from 1922 until his resignation terminated the appointment in 1949. In 1932, he was made Medical Director of the Children's Preventorium, Ramsey County, and took an active role in the management of this institution. He was consultant for Pokegama Sanatorium, Pokegama, Pine County, Minnesota, from 1920 to 1943 when the institution closed. The University of Minnesota Medical School recognized his ability by making him instructor of Medicine in 1921 and Assistant Professor in 1934. He was a diplomate of the American Board of Internal Medicine and a fellow of the American College of Physicians.

Dr. Geer was a member of the following societies: American Heart Association, American Sanatorium Association, American Trudeau Society, Central Society for Clinical Research, International Union against Tuberculosis, Minnesota Academy of Medicine, Minnesota Society of Internal Medicine, Minnesota Pathological Society, Minnesota State Medical Association, Minnesota Trudeau Society, National Tuberculosis Association, Ramsey County Medical Society, Minnesota Public Health Association and the Ramsey County Public Health Association.

A number of these societies added to Dr. Geer's responsibilities by giving him official position. He was a council member of the American Trudeau Society from 1941 to 1943. In addition he served as President of the Minnesota Trudeau Society in 1934-35 and of the Ramsey County Public Health Association in 1944.

When the Veterans Administration was reorganized under General Omar Bradley, Dr. Geer was appointed Veterans Branch Section Chief in Tuberculosis for the states of Minnesota, North and South Dakota, Iowa, and Nebraska. The Veterans Program was altered later and Area Consultants in Tuberculosis were appointed for various groups of states. Dr. Geer was the Area Consultant in Tuberculosis for the above five states plus Wisconsin, Michigan, Illinois, Wyoming, and Montana.

The *Index Medicus* lists 14 papers by Dr. Geer on problems of chest disease. In 1932, he read a paper entitled "Primary Tuberculosis Among Nurses" before the National Tuberculosis Association. This was followed by 4 papers on the same theme and introduced his work in the prevention of tuberculosis infection in nurses employed in institutions for the care of tuberculosis patients. This contribution was outstanding and his technique has been adopted in many sanatoria here and abroad. Dr. Geer's influence outside the United States is illustrated by a paper in Spanish on prevention of tuberculosis infection which appeared in El dia Medico (Buenos Aires). He will long be remembered by those who pay attention to the prevention of tuberculosis.

Dr. H. M. N. Wynne read the following memorial to Dr. J. K. Anderson who died on March 27, 1950. A motion was carried that this be placed on the records of the Academy and a copy sent to the family.

JAMES KERR ANDERSON
1891-1950

Dr. James Kerr Anderson was born in East Liverpool, Ohio, on July 11, 1891. He was graduated in 1913 with the degree of A.B. from Washington and Jefferson College, located in Washington, Pennsylvania. He entered the Medical School of the Johns Hopkins University the same year and received his M.D. degree in 1917. His internship was served in the Minneapolis General Hospital from June to December, 1917, when he was called for active duty in the U.S. Army Medical Corps as 1st Lieutenant in December, 1917. He served in the army until August, 1920. He started the practice of medicine in Minneapolis but was taken ill and spent the following three years in Glen Lake Sanatorium. In 1924 he became Superintendent of the Deerwood Sanatorium at Deer River, Minnesota, and the following year he was Superintendent of Sunnycrest Sanatorium at Crookston, Minnesota, where he worked until 1929, when he entered the practice of proctology in association with Dr. W. A. Fansler. Dr. Anderson was a clinical associate professor of surgery at the University of Minnesota and an active member of the staffs of Abbott, Northwestern, St. Mary's and Minneapolis General Hospitals. He was a member and past president of the Hennepin County Medical Society, and a member of the Minnesota State Medical Association, the Minneapolis Academy of Medicine, the Minnesota Academy of Medicine, and a Fellow of the American Medical Association, the American College of Surgeons and the American Proctological Society, and a Diplomate of the American Board of Surgery in Proctology. Phi Beta Pi was one of his active interests and he was a past National President of this medical fraternity. Dr. Anderson was co-author with Dr. H. O. McPheeters of the book "Injection Treatment of Varicose Veins and Hemorrhoids" as well as a number of articles on proctological subjects.

In 1917, he was married to Clara Hazel Abele. Their daughter, Gretchen (Mrs. Robert Osgood) and Mrs. Anderson, as well as his mother, survive him.

James Kerr Anderson died March 27, 1950. Services

were held in the Chapel of Westminster Church, Minneapolis, and burial was in Zanesville, Ohio.

Dr. Anderson was loved by his professional friends as well as by his patients and his friendship and interest in older people was remarkable. His nonprofessional visits cheered many an ill friend. In spite of his several illnesses and painful afflictions, Dr. Anderson remained to his death a hardworking, kindly and cheerful man.

The Secretary read the names of candidates to be voted on at the November meeting to fill twelve vacancies in the Minnapolis list, this list having been increased from thirty-five to forty-five. There are no vacancies at the present time in the Saint Paul list.

There was some discussion of the revisions in the Constitution or Articles of Incorporation, and it was finally moved, seconded and carried that these articles under consideration be referred back to the Executive Committee for further study and rewording, to be voted on at a later meeting.

A motion was made and seconded that we limit the next election to five of those names present in the list and hold the others over until later meetings. This motion was not carried, however.

The scientific program followed.

Dr. Gordon Kamman, Saint Paul, read a paper on "Traumatic Neurosis, Compensation Neurosis, Attitudinal Pathosis."

There was no discussion of this paper.

Dr. Lyle H. Hay, of the U. S. Veterans Hospital, by invitation, read a paper on "Gastric Polyps." X-ray lantern slides were shown.

GASTRIC POLYPS

A Clinical Study

LYLE H. HAY, M.D.

Minneapolis, Minnesota

The rise in age of the general population due to improved public health practices, advances in therapy of bacterial infection and the decreased mortality in surgical treatment has made malignancy an increasingly important problem. Pending solution of the total problem of cancer, the early diagnosis and treatment of malignancy offer the only real promise for reducing mortality.

This study was made on ninety-seven patients with gastric polyps. The purpose of the study was first to determine what the characteristics of polyps were, i.e., what symptoms they provoked, what the laboratory findings were, what the x-ray picture showed, and what the gastroscopist saw. Second, to determine what natural evolution of pathology followed the identification of gastric polyps. Third, to determine whether all polyps were of the same significance or whether we could judge some to be relatively innocuous and others to offer a more serious prognosis. Fourth, to find a satisfactory screening test for patients which would permit us to employ roentgen study of the stomach and gastroscopy in an attempt to identify polyps. In order to make this a picture of the characteristics of a single clinical entity every effort was made to include only gastric adenomas which we define as a benign epithelial tumor originating from the tubules or glands of the gastric mucosa.

Cases diagnosed clinically were included only after having been visualized on at least two occasions roentgenologically, gastroscopically or by each method on one occasion.

The benign adenomas were selected from benign tumors encountered in the surgical pathology laboratory. No epithelial benign tumors were excluded.

Benign Gastric Polyps

Symptomatology.—In order to eliminate symptoms due to carcinoma, the symptomatology was determined from the sixty-nine cases having only benign polyps or adenomas.

1. Epigastric distress was the most common symptom and was noted in twenty-four of the sixty-nine cases. This was characterized by gaseousness and epigastric fullness usually most marked after eating. In nine of the twenty-four cases the epigastric distress had been present from one to twenty years.

2. Nausea and vomiting were experienced by only four patients, all of whom had epigastric distress and all of whom obtained relief from vomiting.

3. Appreciable weight loss was noted in only seven patients. In two of these patients prolapsing polyps apparently interfering with gastric emptying were present.

4. Pernicious anemia was present in ten patients having benign gastric polyps and iron deficiency anemias in two additional cases. In addition, three cases of pernicious anemia occurred in the group of twenty-eight cases having adenomas associated with carcinoma of the stomach.

Numerous observers have noted the frequency with which benign adenomas and/or carcinoma of the stomach are associated with pernicious anemia.

5. Only three patients had a history of gastrointestinal bleeding. None of these could be classed as showing severe hemorrhage.

6. Twenty-four patients diagnosed as having benign polyps had no symptoms referable to the gastrointestinal tract.

Since nine of the ten patients with pernicious anemia had no symptoms other than those of anemia to implicate the gastrointestinal tract we find thirty-three of sixty-nine (47.7 per cent) of patients complained of no symptoms ascribable to gastric polyps per se.

Laboratory Tests.—Stool examinations resulted in positive guaiac tests in twelve of the forty-four patients examined.

Gastric analysis indicated achlorhydria to histamine in sixty-three of sixty-nine patients. In most cases several examinations were made.

Hypochlorhydria was noted in three patients and only three of the sixty-nine patients examined showed more than 25 degrees of free acid.

Carcinoma Associated with Benign Adenomas

Symptomatology.—The symptoms in the twenty-eight cases having benign adenomas associated with carcinoma of the stomach were more severe. Twenty-one cases showed epigastric distress, six nausea and vomiting, sixteen significant weight loss, five hypochromic anemia and three bleeding. Only one of the twenty-eight showed no symptoms referable to the upper gastrointestinal tract.

Laboratory Tests.—Stool examinations were positive in 66 per cent of the eighteen cases examined. Gastric analysis indicated achlorhydria to histamine stimulation in twenty-two of the twenty-three cases.

Roentgen Examinations.—Twenty cases diagnosed as having gastric carcinoma where the associated gastric polyps were not detected or ignored were excluded.

In seventy-seven patients examined for detection of polyps and differential diagnosis from cancer, a diagnosis of benign polypi was made in fifty-four instances. In three of these patients, malignancy was subsequently shown. A diagnosis of questionable malignancy was made in sixteen instances and operation advised. Six of these were subsequently proven malignant and ten benign.

In seven cases, polypi were missed by the roentgenologist.

Gastroscopy.—Gastric polyps were visualized in sixty-one of the sixty-six patients examined. A diagnosis of benign lesion was made in fifty-one cases and malignancy was subsequently shown present in three.

Ten cases were diagnosed as possibly malignant. Four of these were malignant and six benign.

By the combined efforts of the roentgenologist and gastroscopist only two of seventy-seven patients handled had surgery delayed in the presence of malignancy and this for nine and nineteen months.

Etiology.—The only significant finding relating to etiology was the frequent finding of an atrophic gastric mucosa with the polyps. Thus, in fifteen cases the occurrence of achlorhydria in the histamine provoked secretion, and/or gastric atrophy by gastroscopy antedated the detection of the gastric polyps from three to thirteen years.

Achlorhydria was present in 92.5 per cent and hypochlorhydria in 4.5 per cent, indicating a functional mucosal change in 97 per cent of cases.

Forty-four of forty-six patients whose mucosa was examined microscopically had a moderate to severe atrophy present.

Ten of the sixty-nine patients having benign polyps had pernicious anemia, a disease by definition requiring mucosal atrophy.

X-Ray Characteristics.—

1. Filling defect which is usually central, round or oval, sharply outlined and smooth in contour.
2. Peristalsis passes through the gastric walls in the region of the defect.
3. Gastric walls are flexible in the region of the tumor.
4. Defect is freely movable.
5. Pedicle can be demonstrated.
6. Defect may appear in duodenal bulb if the tumor prolapses through the pylorus.
7. The lumen of the stomach is not decreased in size.
8. With polyposis, the barium shadow of the stomach may show many small defects.

Characteristics of Gastric Polyps

Size.—Various characteristics of the polyps were studied for significant data. The size of the polyp was the most important factor determined. It is noted that of fifty-four polyps one centimeter or less in diameter only one was malignant. In twenty-nine polyps from one to two centimeters in diameter none were malignant. In thirteen cases over two centimeters in diameter seven were malignant.

Location.—The location of the polypi in the stomach is noted. The only significant figure is the one indicating that when a carcinoma is present it is more likely to be accompanied by benign polyps in the body.

Microscopic Character of Adenomas.—Examination of the adenomas under the microscope revealed data that, if substantiated, may be of assistance when satisfactory biopsies can be taken at gastroscopy.

Some of the adenomas showed epithelium having large cylindrical cells with dark-staining cytoplasm with no evidence of mucus formation. The nuclei were large, hyperchromatic and centrally located. This has been termed "irritative hyperplasia" or "indifferent epithelium" by others. In any case, we note that of the twenty-three adenomas associated with carcinoma thirteen showed the change and ten did not; while of the twenty-five cases not associated with malignancy, five showed the change and twenty did not.

Treatment

Surgical—

1. All polypi 2 cm. in diameter or larger.
2. All polypi causing symptoms, i.e., bleeding, obstruction, etc.
3. Polypi showing an increase in size.
4. Polypi whose roentgenological or gastroscopic appearance suggest malignancy.

The surgical treatment recommended is usually subtotal (75 per cent) gastric resection. Since total gastrectomy has a higher morbidity and mortality and gastric polyps and carcinoma occur with somewhat less frequency in this area; this procedure is recommended only when polypi are demonstrated in the cardia.

Observation.—Patients having polypi not qualifying for surgical therapy or having definite contraindications to gastric resection are recalled for a re-examination by the roentgenologist and gastroscopist at intervals of three or four months.

Prognosis.—In thirty-four patients followed from one to nine years for a total of 125 years, two patients developed carcinoma.

Conclusions

1. One-half of the patients having gastric polypi have no symptomatology indicating gastrointestinal disease.

2. Since gastric analysis shows achlorhydria or a marked hypochlorhydria in 97 per cent of cases this is an adequate screening test for selection of patients for roentgenologic and gastroscopic examination for detection of these precancerous lesions.

3. Roentgenological and gastroscopic examinations each permit the diagnosis of gastric polypi in 90 per cent of cases.

4. Pernicious anemia patients have gastric polypi much more frequently than other patients.

5. The chances of malignancy being present in lesions less than 2 centimeters in diameter are small, whereas in lesions over 2 centimeters they are about 1 in 2.

6. Chronic atrophic gastritis is present in nearly all cases developing adenomas.

7. The probability of a carcinoma developing in a patient diagnosed benign adenoma and observed for three and a half years would seem to be about one in thirteen.

Discussion

DR. A. E. REGNIER, Minneapolis: What percentage did you find of carcinoma involving polyps and what percentage grew separately?

DR. HAY: Almost all were large enough so that it was impossible to tell whether they involved polyps.

DR. REGNIER: The polyp was an incidental finding in those twenty cases?

DR. HAY: One patient had carcinoma in one part of the stomach, and the polyp was in another part. I believe there is as much evidence that a stomach with a severe atrophic gastritis, as in pernicious anemia, will develop malignancy as much as one with polyp.

DR. REGNIER: Do you have any figures on the number of malignancies where the carcinoma originated in polyps?

DR. HAY: About twenty were operated on. Whether it was a malignant polyp or whether it was benign and became malignant, we can't tell.

DR. GEORGE FAHR, Minneapolis: Am I to understand that you are suggesting we should operate on all cases of atrophic gastritis?

DR. HAY: I feel here we have a little different situation. I think it is likely that patients with atrophic gastritis associated with polypi develop carcinoma no more often than patients with pernicious anemia. I would not suggest that every patient with pernicious anemia be operated upon but if he has a polyp which indicates any evidence of malignancy, then he should be operated. Most of them have the smaller polyp. If the original examiner—gastroscopist or roentgenologist—feels it is a possible malignancy, then operate. But if only one says it is malignant, then the patient is watched.

DR. FAHR: How often do they return at 6-month intervals?

DR. HAY: You have to talk it over with the patient and if they are not willing to come back you should proceed with operation. I recall one man who has had 7 or 8 gastroscopies; he would prefer to have them rather than operation.

DR. HANSON: What years did you take these on?

DR. HAY: From 1937 to 1947. A lot of patients were not included in the group. They ordinarily would have to be diagnosed twice to have been included. There were about 50 patients not included. This isn't the entire group.

DR. J. B. CAREY, Minneapolis: In answer to Dr. Fahr's question, our patients usually return three or four or six times and then are likely to become indifferent and do not come back.

I wish to commend the Academy for having heard the report of the largest number of gastric polyp cases that have been examined by any one group. No larger group is reported in the literature. As Dr. Hay suggested, our interest arose from the desire for detection of early manifestations of malignant disease. The gastric polyp, of course, was one point of attack. Beginning in 1936, I had seen more than one-hundred polyps by gastroscopic examinations. Some of these were eliminated; for instance, the flat and half-pea adenomas in the antrum region of the stomach with normal gastric mucosa. We had no reason to suspect these were malignant or probably ever would be.

Answering Dr. Regnier's question about the incidence of polyps is difficult because our material is heavily weighted by inclusion of many more patients with atrophic gastritis and achlorhydria than one would come upon ordinarily.

The interesting phase of the situation to me has been the polyps we decide are benign, accepting the responsibility of delaying or deferring operation, and choosing rather to observe them. I have a group of better than thirty that I have seen a number of times; in none of them has there been a suggestion of change in the direction of malignancy. Significant is the change in size and appearance of a polyp between one examination and another. The benign polyp does not change from time to time. If a polyp increases in size or spreads out into the mucosa, that polyp is likely to be malignant. Whether that was a benign adenoma and became malignant, we don't know. In a few cases, the pathologist has described metaplasia or other indifferent cell alterations. A polyp which once was declared to be benign and subsequently shows a change in size, color, or appears to be malignant, may have been an adenocarcinoma, but not recognized as such.

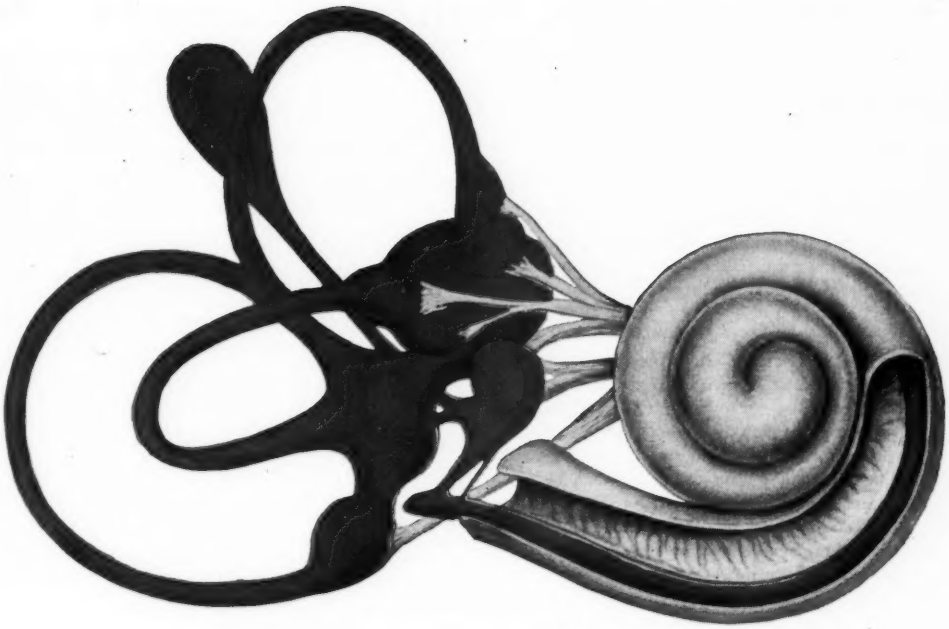
DR. HAY: I would like to ask Dr. Fahr a question. I think the incidence of carcinoma of the stomach with pernicious anemia is somewhere around 8 per cent. How low would the surgeon have to get his mortality before he would advise operation?

DR. FAHR: The atrophic gastritis goes on a long, long time before it becomes malignant. Then there comes a time when the patient comes for re-examination and you make the diagnosis that it is malignant. It is pretty hard to get the patients back for re-examination—not because a good gastroscopist cannot do it without the patients minding; what they do mind is coming back again and again and nothing coming of it. I would not require everyone with pernicious anemia to have a gastrectomy because most of these patients would not live long enough to develop carcinoma. A checkup with gastroscopy and gastrointestinal x-ray at six-month intervals would probably be attended with good results.

DR. HAY: I think I would agree that with pernicious anemia the six-month interval should be recommended.

The meeting was adjourned.

WALLACE P. RITCHIE, M.D., *Secretary*



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—Tuttle, A. D.: Special Breakdown of Case Histories, presented at the Airlines Medical Directors Association Meeting, New York, N. Y., Aug. 28, 1949.

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✦ Reports and Announcements ✦

PHYSICIANS' ART SHOW

The American Physicians' Art Association will have an art exhibit, as usual, during the AMA convention at Atlantic City, N. J., June 11 to 15. Any physician in the United States, Canada and Hawaii desiring to participate in this show should communicate with Dr. F. H. Redewill, Secretary, American Physicians Art Association, 760 Market Street, San Francisco 2, California, for particulars.

J. Henry Helser & Co., Inc., investment managers, are the new sponsors of the American Physicians Art Association and will award 200 trophies besides a special Helser Trophy—a large decorative cup depicting Yankee ingenuity. This cup is to be awarded for art work done in any medium. Also the large Popularity Trophy will be awarded to the owner of the art piece receiving the most popular votes during the AMA convention. Over 4000 members of the American Physicians Art Association shortly will receive entry blanks, shipping labels and rules about this fourteenth art exhibition.

The Annual Art Banquet will be held on the evening of June 12 at the Marlborough-Blenheim Hotel, Atlantic City, N. J.

POSTGRADUATE COURSE IN ALLERGY

A postgraduate course in allergy will be offered by the American Academy of Allergy on June 14, 15, and 16 in Montreal, Canada. It will be sponsored by the Faculty of Medicine, McGill University, and will be held at the Royal Victoria Hospital in Montreal.

Any interested physician in the United States or Canada may attend. Fee for the course is $40. Applications can be sent to Bram Rose, M.D., Royal Victoria Hospital, Montreal 2, Canada.

Sixteen speakers will present the course, nine of whom are on the faculty of medicine at McGill University. In addition to general allergy subjects there will be lectures on "Otorhinology in Relation to Allergy," "Allergic Dermatoses," "Allergy in Children," and "Psychiatric Aspects in Allergy."

AMERICAN COLLEGE OF CHEST PHYSICIANS

The seventeenth annual meeting of the American College of Chest Physicians will be held at the Ambassador Hotel, Atlantic City, New Jersey, June 7 through 10. An interesting scientific program has been arranged for presentation at the meeting.

The Board of Examiners of the College has announced that the next oral and written examinations for fellowship will be held in Atlantic City on June 7. Candidates who would like to take the examinations for fellowship should contact the Executive Secretary, American College of Chest Physicians, 500 North Dearborn Street, Chicago 10, Illinois.

The convocation ceremonies will be held at the Ambassador Hotel, Atlantic City, on Saturday, June 9, at which time certificates will be awarded to new fellows of the College.

Dr. John Briggs, Saint Paul, is a regent of the College; Dr. Herman J. Moersch, Rochester, serves as governor of the College for Minnesota. Dr. J. Arthur Myers, Minneapolis, will present a paper on "The Effect of the Diminishing Incidence of Primary Infection on the Tuberculosis Control Program" in the scientific program, and Dr. N. K. Jensen, Minneapolis, will present the subject of "Recovery of Pulmonary Function after Crushing Injuries of the Chest." The x-ray conference to be presented at the annual meeting will be conducted by Dr. Leo G. Rigler, Minneapolis.

GEORGE E. FAHR LECTURE

Dr. George E. Burch, professor and chairman, Department of Medicine, Tulane University of Louisiana, New Orleans, will deliver the first George E. Fahr Lecture on May 8 on the University of Minnesota campus. The lectureship, which will be given annually, is financed through a gift which former students of Dr. Fahr have presented to the Minnesota Medical Foundation.

Dr. Burch will also participate in a continuation course in electrocardiography for general physicians on May 7 to 11 at the Center for Continuation Study.

SISTER KENNY FOUNDATION SCHOLARSHIPS

The Sister Elizabeth Kenny Foundation, with national offices in Minneapolis, announces availability of Kenny therapist training scholarships totaling $5,400 each for registered nurses and physical therapists. Designed to qualify trainees to become Kenny therapists in the treatment of poliomyelitis, the twenty-four-month course will start June 20, 1951, in Minneapolis.

The purpose of the course is to prepare carefully-selected persons who are interested in scientific postgraduate training in the management of polio, under the supervision of physicians and according to the techniques established by Sister Kenny. Scholarships are paid at the rate of $225 per month, and tuition for all courses will be provided by the Kenny Foundation.

Persons who successfully complete the course for Kenny Therapists will be given a certificate by the Kenny Foundation. The certificate indicates the ability of the holder to treat polio and to supervise others in its management, according to the techniques established by Sister Kenny.

Upon graduation, Kenny therapists are assured of assignment to a Kenny treatment facility. Salaries start at $285 a month and reach $355 through automatic increases at six month intervals. Additional opportunities for advancement, with increased compensation, are available. Two weeks vacation with pay is provided after one year of service, three weeks after two years

(Continued on Page 368)

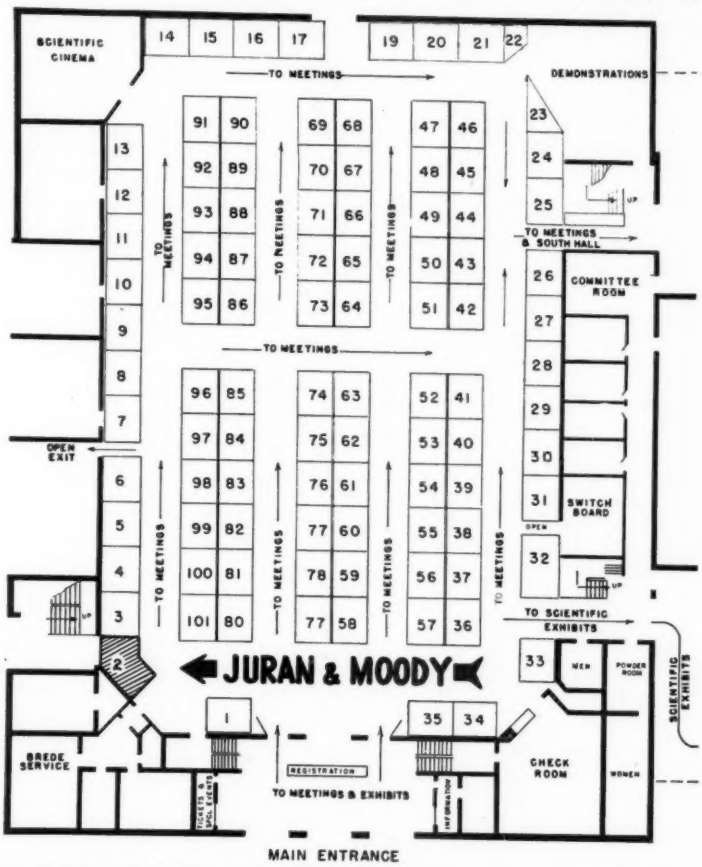
98th Annual Convention

Minnesota State Medical Association

ROCHESTER, MINNESOTA

April 30th—May 2nd, 1951

DIAGRAM OF EXHIBIT HALL—MAYO CIVIC AUDITORIUM



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Relationship of Stress to Autonomic Lability

Studies in psychosomatics have shown that functional disorders often are a result of the patient's inability to adjust to emotionally stressful situations (stressor factors).

Nervous tension and chronic anxiety, discharged through a labile Autonomic Nervous System, can cause somatic disturbance. [1,2] Such states may involve any one of the organ systems or several at one time. [1,3] The outline below is designed to relate gastrointestinal and cardiovascular symptomatology to the exaggerated response of the autonomic nervous system.

	Physiologic Effects of Autonomic Discharge	
	Sympathetic	**Parasympathetic**
Gastro-intestinal System	Hypomotility Intestinal Atony Hyposecretion Reduced salivation	Hypermotility Gastrointestinal spasm Hypersecretion
Cardio-vascular System	Rapid heart rate Peripheral vaso-constriction	Slow heart rate Vasodilatation
Functional Manifesta-tions	Palpitation Tachycardia Elevated blood pressure Dry mouth and throat	Heartburn Nausea-vomiting Low blood pressure Colonic spasm

The data here tabulated is from references [3,4,5,6,7], given below.

When the clinical picture is suggestive of functional disorder, the diagnosis is supported by the presence of the following indications of autonomic lability:

Variable Blood Pressure
Body Temperature Variations
Changing pulse rate
Deviations in B. M. R.
Exaggerated Cold Pressure Reflex
Oculo-Cardiac Reflex Abnormalities
Glucose Tolerance Alterations

Therapy in these cases is directed toward: 1) relieving the somatic disturbance to prepare the patient for psychotherapy*; 2) guidance in making adjustment to stressful situations and correction of unhealthy attitudes.

*Drug treatment using adrenergic and cholinergic blocking agents in conjunction with sedatives. [8,9,10].

1. Ebaugh, F.: Postgrad. Med. *4:* 208, 1948. 2. Wilbur, D.: J.A.M.A. *141:* 1199, 1949. 3. Williams, E. and Carmichael, C.: J. Nat'l. Med. Assoc. *42:* 32, 1950. 4. Goodman, L. and Gilman, A.: The Pharmacological Basis of Therapeutics, The Macmillan Co., 1941. 5. Katz, L. et al: Ann. Int. Med. *27:* 261, 1947. 6. Weiss, E. et al: Am. J. Psychiat. *107:* 264, 1950. 7. Alvarez, W.: Chicago Med. Soc. Bulletin, 581, 1950. 8. Rakoff, A.: A Course in Practical Therapeutics, Williams and Wilkins, 1948. 9. Karnosh, L. and Zucker, E.: A Handbook of Psychiatry. C. V. Mosby Co., 1945. 10. Harris, L.: Canad. M.A.J. *58:* 251, 1948.

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(Continued from Page 366)

and four weeks at the end of three years and each year thereafter.

Complete details and an application blank may be obtained by writing the Director of Training, Sister Elizabeth Kenny Foundation, 1800 Chicago Avenue, Minneapolis 4, Minn.

CONTINUATION COURSES

Atomic Medicine.—The University of Minnesota announces a continuation course in atomic medicine to be given to all physicians on April 26, 27, and 28. The course will emphasize the basis of and the effects of the atomic bomb with particular stress on pathological and clinical findings and organization for defense. Dr. George M. Lyon, chief of the Radioisotope Section of the Veterans Administration, Washington, D. C., will be the guest speaker. The course will be given without tuition. However, registration must be made early.

General Surgery.—A continuation course in general surgery will be given on May 17, 18, and 19 at the University of Minnesota Center for Continuation Study. This course is for general surgeons and physicians and will stress gastrointestinal surgery and diagnosis. Dr. Walter G. Maddock, professor, Department of Surgery, Northwestern University Medical School, Chicago, Illinois, will be the guest faculty member for the course.

Cardiovascular Diseases.—Dr. Irving S. Wright, professor of clinical medicine, Cornell University, New York City, will participate in a continuation course in cardiovascular diseases to be presented at the Center for Continuation Study, May 24 to 26. The course is sponsored by the Minnesota Heart Association and will emphasize the diagnosis and treatment of the most common cardiovascular disorders.

BLUE EARTH COUNTY SOCIETY

The Blue Earth County Medical Society has initiated an x-ray conference following their regular monthly meetings. These meetings are held on the last Monday of the month at 8:00 p.m. at the Mankato Clinic in Mankato, Minnesota. The x-ray conference is conducted by Dr. L. M. Hammar, roentgenologists at the Mankato Clinic. Physicians in the surrounding areas are invited to participate in this conference by bringing interesting and puzzling x-rays. They should be prepared to give a brief case history. Refreshments are served following the meeting. The conference has been well received by the Blue Earth County physicians.

The average public relations budget for state societies with 1,000 to 5,000 members in 1950 totaled about $16,000. In 1951, these societies are budgeting approximately $18,700 for public relations, an increase of more than $2,000 over 1950. Conversely, the larger societies (5,000 and over) who budgeted on an average of $72,800 in 1950 are alloting the reduced sum of about $65,000 for PR in 1951.

Societies under 1,000 members averaged about $6,600 for PR in 1950. Not enough 1951 budgets of these societies have been allocated at this time to compute the 1951 budget average.—*The PR Doctor,* March 14, 1951.

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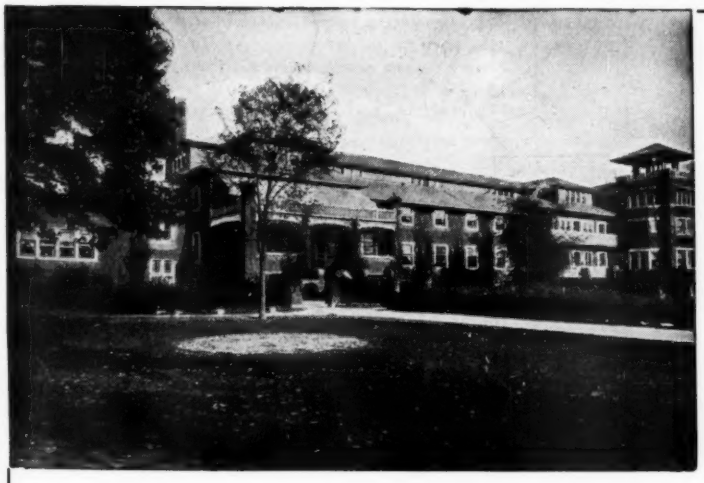

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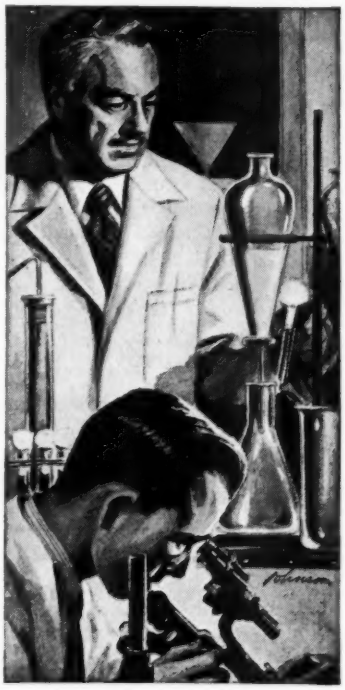

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Woman's Auxiliary

WELCOME EXTENDED TO ANNUAL MEETING

Mrs. E. D. Rooke, President, OHFD Medical Auxiliary

Dear Auxiliary Members:

We of the Olmsted-Houston-Fillmore-Dodge County Medical Auxiliary wish to invite you to come and see us at the state convention in Rochester, April 30, May 1 and 2.

We are looking forward to your visit. Plan to make your stay a long one—we shall try to make it a happy one.

GENERAL PROGRAM POINTERS OUTLINED

Mrs. David J. Halpern, Chairman Program and Health Education Committee

1. Strive to make the auxiliary programs more instructive. Have specific programs, study and discuss these in meetings. Get *authentic* information so that facts can be given when a question is asked.

2. Vary ways of presenting the program. Get as many to participate as possible.

(a) workshop, (b) lecturer, (c) panel discussion, (d) movies.

3. Entertainment may be included. However, do not have the percentage of entertainment exceed the instructive part of the program. Any program worth giving time to is one which promotes further thinking or action of some sort.

4. Use pledge of loyalty to Woman's Auxiliary at local meetings.

5. Consult and seek advice of the local medical society before participating in any new program.

Program Material Listed

1. Continue to concentrate on legislative issues, especially National Compulsory Health Insurance. Be on the alert for "fringe bills."

2. Each community has different health problems. Know each community and discuss local health problems. Know and study local health agencies, develop a community health council and study the school health program.

3. The American Medical Association has its "Twelve Point Program." Five of these are especially suitable to the type of work auxiliary women are qualified to do. Number five, medical facilities, touches the rural health problem. The others are mental hygiene, public health, chronically ill and aged, and health education.

4. Study and promote "Today's Health," the National Bulletin, the Auxiliary page of Minnesota Medicine, and the Auxiliary Newsletters.

5. Members should familiarize themselves with the voluntary prepayment medical and hospital care plans in the state.

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6. Consider the possibility of a nurse recruitment program.

7. Each auxiliary should have a civilian defense program.

Each member should do her bit to "promote better health the American way." If all members do their part, the reports at the close of 1950-1951 will be most gratifying.

CHAIRMAN STRESSES PUBLIC RELATIONS

Mrs. L. J. Leonard, Public Relations Chairman

Public relations is actually twofold—informing the lay people how they may procure and better understand data relating to means of obtaining better health for them and their children and, convincing the public of the interest and sincerity with which the medical profession is striving to protect their future medical needs.

County presidents should avail themselves of the various radio scripts obtainable through the Minnesota State Medical Association office. They will help in either planning a radio program or arranging for spot announcements over local stations.

Many new and instructive health films on cancer, tuberculosis and diabetes may be shown to a community group in local high schools, where they have facilities to show sound films. Other films on civilian defense, which are very timely, may also be obtained.

Convince people of interest in their health, make known the available health facilities, encourage factual study and discussions of local problems, help church groups, associate with every type of health campaign such as TB seal sales, cancer drives and heart fund drives, etc.

Members hear continually of the great shortage in the nursing field. Plan programs, as some counties have done, where high school girls are entertained and the requirements and benefits of a nursing career explained to them. In this regard, perhaps a nursing scholarship could be contributed, as has been done in some county auxiliaries. Inquiry might also be made as to what hospitals offer scholarships—it might provide just the aid necessary to some girl who could not afford it otherwise.

The auxiliary is very proud of the success of the AMA advertising campaign conducted by Whitaker and Baxter. Advertisements appeared in 10,300 newspapers and Sunday supplements, fifty-five national magazines, and announcements were made over 1,600 radio stations. In addition, thousands of allied professions, lay organizations, business and industry added their support. Much has been accomplished but a great deal remains to be done. Many people still do not know the facts.

As a suggestion to further inform the general public, why wouldn't it be a good idea to encourage high school debating on this subject? So much positive material is available for their use and it would be one way of getting authentic information to them. The State Medical Association office, 496 Lowry Medical Arts Building, St. Paul 2, can supply this data.

Those members who have not read "Santa Claus, M.D." written by Dr. W. W. Bauer, should surely resolve to do so. It is a 220-page book, humorous and statistical, and explains just why the voluntary way is the American way. After reading it, members will have a very good foundation of fact which they need not hestitate to expound. It sells for $2.75 and may be obtained from the Bobbs-Merrill Company, Inc., Indianapolis 7, Indiana, or the book departments of most department stores.

In Memoriam

ELLERY LESLIE ARMSTRONG

Dr. E. L. Armstrong, specialist in eye and ear disease at Duluth, Minnesota, died on January 2, 1951, after a brief illness.

Dr. Armstrong was born in Minneapolis, August 19, 1889. He graduated from the University of Minnesota medical school in 1916 and interned at the University Hospital in Minneapolis.

He practiced at Park Rapids from 1916 to 1919 before taking postgraduate work in ophthalmology and otolaryngology at the University of Minnesota from 1919 to 1921.

Dr. Armstrong was a Fellow of the American College of Surgeons and of the American Academy of Ophthalmology and Otolaryngology. He was a member of the St. Louis County Medical Society, the Minnesota State Medical Association and the American Medical Association. He was also a member of the Pilgrim Lutheran Church, the Scottish Rite Masons, the Duluth Kiwanis Club and Phi Beta Pi medical fraternity.

He is survived by his wife, three sons, Dr. Frederick Armstrong of Minneapolis, Leslie and Robert of Duluth, and a daughter, Sally, also of Duluth.

S. JOHN LEHMAN

Dr. S. J. Lehman, of Brainerd, died January 10, 1951, at a hotel in St. Cloud, Minnesota. He was thirty-two years of age.

Dr. Lehman was born at Glendive, Montana, February 18, 1918. He graduated from the University of Minnesota medical school in 1943 and interned at Miller Hospital in Saint Paul. He spent three years taking postgraduate work at the University of Minnesota and was a year with Dr. Frank E. Burch of Saint Paul.

He had been with the Bratrud Clinic at Thief River Falls before locating at Brainerd. He was a veteran of World War II and a member of the Plymouth Lodge, A. F. & A. M., Minneapolis, the Elks and Eagles lodge and the Rotary Club.

Dr. Lehman was married in 1942 to Bernice Lundgren of Minneapolis. Surviving are his widow and triplet daughters, Nancy, Susan and Caryl. A brother, six sisters and his parents, Mr. and Mrs. S. S. Lehman of Lindsey, Montana, also survive him.

RAY B. McCARTY

Dr. Ray B. McCarty died April 15, 1950, at Riverside, California.

Ray McCarty was born at Corona, California, September 1, 1899. He received his A.B. degree from the University of California in 1921 and his M.D. degree from the University of Pennsylvania in 1925. He entered the Mayo Foundation October 1, 1927, received the degree of Master of Surgery from the University of Minnesota in 1930 and was a resident surgeon at Colonial Hospital until 1931. He had practiced surgery in Riverside, California, since 1931.

Dr. McCarty was a member of Alpha Omega Alpha, Nu Sigma Nu and Sigma Pi fraternities and also of the American College of Surgeons.

EDWARD T. SANDERSON

Dr. Edward Theodore Sanderson, eldest son of Dr. Samuel E. and Elisa Sanderson, was born April 20, 1875, in Boone, Iowa. In his early childhood, the family moved to Minneota, Minnesota, where his father began the practice of general medicine. In his mid-teens it became necessary for him to assume full responsibility for his own support. He worked for several years as auditor for the C. A. Smith Lumber Company traveling between various mid-west towns, and for two years as a bank cashier. He then resumed his education by attending St. Olaf Academy, Northfield, Minnesota, from 1900-1901. The following year he matriculated at Bennett Medical College, the present Loyola University Medical School, of Chicago, Illinois, from which he received his medical diploma in 1905.

Following his graduation, he became professor of Anatomy and secretary and registrar of the College and maintained an office in Chicago for one year. He was married on December 31, 1906, to Miss Harriet Wallin of Eastman, Wisconsin. Due to his father's ill health, he returned to Minneota where he assumed the medical practice and served the community in that capacity for forty years. His practice was typical of the horse and buggy doctor of that era. During his active years, he delivered more than 5,000 babies in addition to his general medical practice. In 1945, he was forced to retire because of illness.

Dr. Sanderson held a long record in the service of the state medical profession. In 1917, he was appointed to the first State Advisory Commission on Tuberculosis. This commission carried on the first work in the investigation of tuberculosis by the State of Minnesota. After five years of service on this commission, he was appointed to the State Board of Medical Examiners in 1922. He remained on the board until 1932 and served as president and executive secretary for several years. This was the first time in the history of the state that the secretaryship of the examining board had been earned by a country doctor. He was president of the Minnesota State Medical Association in 1924. He was one of the founders and a past president of the Lyon-Lincoln Medical Society. In addition to these honors by the State of Minnesota, he was awarded citations and medals from the Presidents of the United States for the examination of selectees in both World Wars. He was a member of the American Medical Association, the Minnesota Medical Association and the Lyon-Lincoln Medical Society during his entire practice.

He served as mayor and councilman of Minneota for several terms and was president of the school board of the Minneota Public Schools for many years.

(Continued on Page 374)

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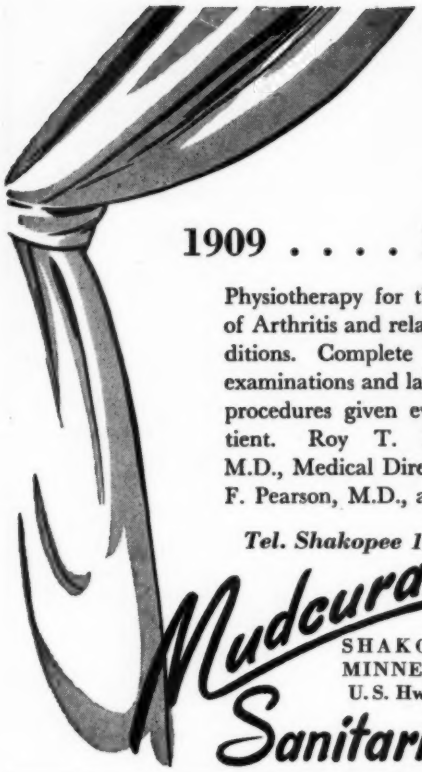

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EDWARD T. SANDERSON

(Continued from Page 372)

For the past five years, he and Mrs. Sanderson have lived in Alexandria, Minnesota, where he passed away on March 16, 1951 at the age of seventy-six years.

He is survived by his widow, Mrs. Harriet W. Sanderson; four children: Mrs. George W. Clifford of Alexandria, Minnesota; Edward W. of New York, New York; Dr. Eric R., of Seattle, Washington; Margaret H. of Chicago, Illinois; and seven grandchildren. He is also survived by a brother, Dr. A. G. Sanderson of Anoka, Minnesota, and a sister, Miss Sara T. Sanderson of Albuquerque, New Mexico.

Funeral services were held at the First English Lutheran Church in Alexandria, Minnesota, on March 20, 1951, with Reverend Martin T. Jensen officiating. Interment was at Kinkaid Cemetery, Alexandria.

MARK H. TIBBETTS

Dr. Mark H. Tibbetts, orthopedic surgeon of Duluth, died January 28, 1951, in his hotel room while in Chicago attending a convention of orthopedic surgeons.

Mark Tibbetts was born at Ogden, Iowa, September 18, 1889. He attended Parsons College at Fairfield, Iowa, where he obtained a B.S. degree in 1912. His M.D. degree was obtained from Johns Hopkins Medical School in 1917. He interned two years at Johns Hopkins Hospital, Baltimore.

Dr. Tibbetts was a member of the St. Louis County Medical Society, the Minnesota State Medical Association and the American Medical Association.

MICHAEL ZLATOVSKY

Dr. Michael Zlatovsky of Duluth died January 15, 1951, at the age of seventy. He was born in Russia, July 1, 1876.

Dr. Zlatovsky graduated from the University of Kiev in Russia in 1912 and had practiced in Duluth since 1923. He became naturalized in 1929.

He was formerly a member of the St. Louis County Medical Society, the Minnesota State Medical Association and the American Medical Association.

Dr. Zlatovsky is survived by his son, George, of Paris, France, and his daughter, Mrs. Michael Tennenbaum of Chicago.

Still more recently, another influence has risen to increase the demand for hospitals. This is voluntary insurance against the costs of medical care. When such protection is carried, it is perhaps a human trait to exploit it. Someone has said that there is a curious defect in our moral code that makes it no crime to defraud an insurance company. The instance of so-called health insurance appears to support this contention. Too often, and perhaps without realizing that he is abusing his privilege and thereby raising the cost of insurance, the protected person demands hospitalization for causes not specified in the benefits. It is not easy for a physician, however conscientious, to oppose such a demand. The constantly increasing utilization of the benefits of voluntary medical-care insurance has added to its cost almost as much as has the rising cost of hospital operation.—PAUL R. HAWLEY, M.D., New England Journal of Medicine, February 15, 1951.

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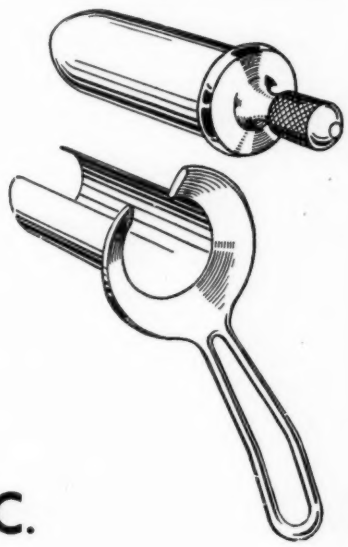

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Surgery of Colon and Rectum, one week, starting May 14, June 4.
Esophageal Surgery, one week, starting June 4.
Thoracic Surgery one week, starting June 11.
Gallbladder Surgery, ten hours, starting June 18.
Breast and Thyroid Surgery, one week, starting June 25.

GYNECOLOGY—Intensive Course, two weeks, starting April 16, June 18.
Vaginal Approach to Pelvic Surgery, one week, starting May 7, June 11.

OBSTETRICS—Intensive Course, two weeks, starting June 4.

MEDICINE—Intensive General Course, two weeks, starting April 23.
Gastroenterology, two weeks starting May 14.
Gastroscopy, two weeks, starting May 14.
Electrocardiography and Heart Disease, two weeks, starting July 16.

PEDIATRICS—Congenital and Acquired Heart Disease in Children, two weeks, starting May 7.
Cerebral Palsy, two weeks, starting July 9.
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Of General Interest

Dr. Kenneth L. Nelson announced on March 14 that he had terminated his practice in Balaton and was moving from the city. The reason for his move was said to be the unavailability of rental property for housing. Dr. Nelson had practiced in Balaton for slightly more than one year.

* * *

At a meeting of the board of directors and medical staff of the Riverview Memorial Hospital, West Saint Paul, on March 14, **Dr. Kano Ikeda** of Saint Paul spoke on new laboratory facilities for the hospital. Chief topic of discussion at the meeting was ways and means of improving the hospital.

* * *

Dr. A. W. Adson, Rochester, was principal speaker at a meeting of the Optimist Club in Saint Paul on March 15. He discussed the advances made by medical science.

* * *

Dr. Thomas J. Devereaux, Wayzata, suffered a fractured ankle and a wrist when he slipped on an icy street while making a professional call in Minneapolis on March 7.

* * *

The new twenty-two-story **Mayo Memorial Medical Center,** which is now under construction, at the University of Minnesota, will not be enough to meet the medical school's need for space during the next fifty years, a medical school committee reported early in March. The committee was headed by **Dr. Gaylord W. Anderson,** director of the School of Public Health.

The committee suggested that in the long-range program, space would be needed for research in various fields, facilities for convalescent care, expanded facilities for rehabilitation work, a "hospital-hotel" for outpatients, relocation of the state health department building and the pharmacy building, housing facilities for students and staff members, and greatly increased parking areas.

* * *

Dr. J. G. Beaton, formerly a staff member of the Veterans Hospital at Fargo, North Dakota, has become affiliated with the Fritsche Clinic in New Ulm. He is specializing in the practice of internal medicine.

A graduate of the University of Minnesota Medical School, Dr. Beaton served his internship at the Marine Hospital in Baltimore, Maryland. He then joined the U. S. Public Health Service and was assigned to the Coast Guard. He also served on a troop transport in the Pacific. Following his discharge from service, he took postgraduate work at the Wayne County General Hospital in Detroit, Michigan. In June, 1948, he joined the staff of the Fargo Veterans Hospital, where he specialized in internal medicine.

After six months without a resident physician, Erskine acquired one on February 26 when **Dr. Lawrence O. Pearson** opened offices there for the practice of medicine. Dr. Pearson formerly practiced at Pelican Rapids.

* * *

Dr. Gilbert S. Wheeler, formerly of Portland, North Dakota, became associated in practice with **Dr. D. O. Berge** in Roseau on February 24. A graduate of the University of Manitoba Medical College, Dr. Wheeler practiced at Portland for the past two years.

* * *

Principal speaker at a meeting of the Stewartville Parent-Teacher Association in Stewartville on February 8 was **Dr. E. D. Henderson** of Rochester. He spoke on "Common Foot Ailments in Children."

* * *

Dr. John M. Grogan announced on March 1 that he was planning to discontinue his medical practice in Ceylon. He stated that shortly after June 1 he was going to move to Denver, Colorado, to study radiology at the Colorado General Hospital. Dr. Grogan has practiced at Ceylon since April, 1946.

* * *

Dr. Harold S. Diehl, dean of medical sciences at the University of Minnesota, was one of several witnesses before a Senate subcommittee early in March in Washington, D. C., investigating the dismissal of Dr. Paul Magnuson as Veterans Administration medical director. Dr. Diehl warned the subcommittee that Veterans Administration policies may damage medical care programs in VA hospitals in Minnesota and throughout the country.

As chairman of the dean's committee for the Minneapolis Veterans Hospital, Dr. Diehl said that "over the past couple of years it has become increasingly difficult to get many things done which in the judgment of the staff are important to the program." He stated that "more and more matters must be referred to Washington, frequently with extensive correspondence, prolonged delays, and all too frequently with final decisions made on the basis of the average VA hospital without regard to the local situation."

* * *

Dr. Charles E. Rea, Saint Paul, was the guest speaker at a meeting of the Faribault Business and Professional Women's Club on March 5 in Faribault. He spoke on the subject of socialized medicine.

* * *

Early in March the **University of Minnesota** received a grant of $56,423 from the United States Public Health Service for research on cancer, C-reactive proteins, gastric secretion, experimental diabetes study, influence of aureomycin, and research on the effect of blood glucose levels in rats.

(Continued on Page 378)

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(Continued from Page 376)

Dr. John E. Hildebrand, formerly of Detroit, Michigan, has become associated in practice with **Dr. J. K. Hartjen** in Bemidji. A graduate of Wayne University in Detroit, Dr. Hildebrand has had post-graduate training in obstetrics and pediatrics.

* * *

In a special appeal to the State Legislature on March 12, **Dr. Ralph Rossen,** mental health commissioner of Minnesota, described the crowded conditions still existing in state mental hospitals. His report of the serious overcrowding was based on personal visits made to several state hospitals by a special committee, including himself.

Dr. Rossen called on the Legislature to create an interim commission consisting of at least three legislators, two or three physicians and at least one hospital superintendent to investigate the problem. He stated that "once the legislators see the picture, I am sure that they will come to the patients' aid."

* * *

Dr. Frederick A. Figi, Rochester, presented a paper entitled "Plastic Procedures about the Eyelids" at a meeting of the Minnesota Academy of Ophthalmology and Otolaryngology in Minneapolis on March 9.

* * *

Dr. James J. Anderson, who formerly practiced in Saint Paul, has moved to Mankato and opened offices for the practice of medicine. He specializes in obstetrics and gynecology.

* * *

Dr. Florence Jacqueline Bouthilet, Saint Paul, was married to Kenneth Benjamin Fick, Minneapolis, on March 31. The wedding was held in Immanuel Lutheran Church. Dr. Bouthilet is a graduate of the University of Minnesota Medical School.

* * *

Guest speaker at a meeting of the Mankato Business and Professional Women's Club on February 20 was **Dr. John J. Eustermann** of the Mankato Clinic. The title of his talk was "Recent Advances in the Treatment of Heart Disease."

* * *

Two Minneapolis physicians were among the guest speakers at the fourteenth annual meeting of the New Orleans Graduate Medical Assembly in New Orleans on March 5 through 8. They were **Dr. Albert V. Stoesser** and **Dr. John L. McKelvey.**

Dr. Stoesser spoke on "Use of Cortisone and ACTH in Diseases of Children," "Atopic Eczema in Infancy and Early Childhood," and "New Concepts in the Therapy of Respiratory Infection in Children."

Dr. McKelvey discussed "Studies of the Therapy of Adenocarcinoma of the Endometrium," "Endometrial Hyperplasia and Some of Its Problems," and "Tuberculosis of the Female Generative Tract."

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Dr. M. Y. Colby, Jr., and **Dr. M. M. D. Williams,** both of Rochester, presented papers at the meeting of the Minnesota Radiological Society in Minneapolis on February 24. Dr. Colby's paper was entitled "The Effect of X-Rays on the Normal Gland." The title of Dr. Williams' paper was "New Tools for the Radiologists."

* * *

Dr. Harry A. Palmer, Blackduck, was host on February 15 to staff members of the Bemidji Clinic who went to Blackduck to inspect Dr. Palmer's new clinic building, equipment and facilities. Included in the group entertained by Dr. Palmer were **Dr. W. J. Deweese, Dr. D. D. Whittemore** and **Dr. H. M. Wikoff** of Bemidji.

* * *

After practicing at Jordan since 1948, **Dr. Frederick M. Hass** has moved to Minneapolis to take over the practice of a physician called into the Armed Services.

* * *

Seventeen fellowships were recently awarded to employment and placement counselors for a special course designed to help meet the employment problems of handicapped workers. The fellowships, totaling $5,000, were for a course held in New York from March 12 to April 6 and were awarded jointly by Alpha Gamma Delta, international women's fraternity, and the National Society for Crippled Children and Adults. The counselor training course was part of the national cerebral palsy program started five years ago to provide treatment, training and employment services for victims of cerebral palsy. The purpose of the counselor training program is to encourage public and private agencies to increase their services for the severely handicapped.

* * *

It was announced on March 8 that the Rockefeller Foundation had awarded a grant of $27,300 to the **Dight Institute** at the University of Minnesota for research in human genetics. The grant, which becomes available on July 1 for a three-year period, will be used to develop better methods of aiding people with problems in human genetics.

HOSPITAL NEWS

Results of recent staff elections at several Minnesota hospitals are as follows:

St. Cloud Hospital, St. Cloud.—Dr. H. B. Clark, chief-of-staff; Dr. Charles Brigham, Jr., vice president; Dr. Louis Wittrock, secretary.

Miller Memorial Hospital, Duluth.—Dr. Earl E. Barrett, chief-of-staff; Dr. H. J. Jeronimus, vice chief-of-staff; Dr. Kenneth Teich, secretary-of-staff.

Municipal Hospital, Sleepy Eye.—Dr. William Johnson, president; Dr. E. E. Keithahn, vice president; Dr. Glenn Nelson, secretary-treasurer.

Swedish Hospital, Minneapolis.—Dr. Harold T. Gustason, president; Dr. A. N. Russeth, vice president.

Northwestern Hospital, Thief River Falls.—Formed by a merger of St. Luke's Hospital and

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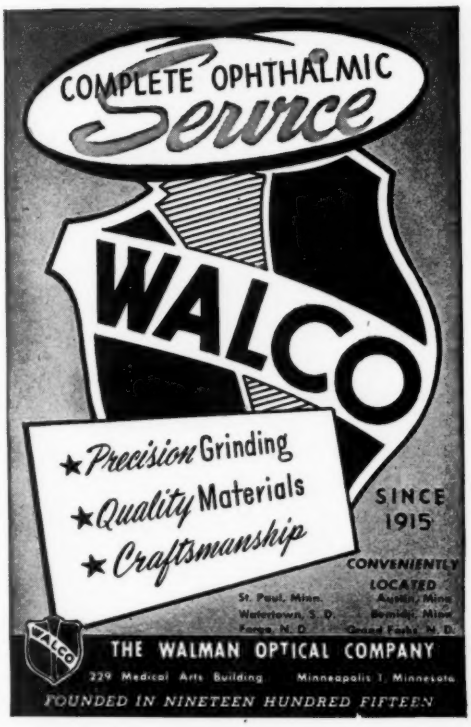

Mercy Hospital. Dr. O. F. Mellby, president; Dr. H. C. Johnson, vice president; Dr. Neil D. Nickerson, secretary.

St. Mary's Hospital, Duluth.—Dr. Keith R. Fawcett, chief-of-staff.

St. Joseph's Hospital, Brainerd.—Dr. G. I. Badeaux, chief-of-staff; Dr. J. A. Thabes, Jr., vice chief-of-staff; Dr. Helen Longfellow, secretary-treasurer.

St. Luke's Hospital, Duluth.—Dr. R. E. Nutting, chief-of-staff; Dr. Sam Boyer, Jr., vice chief-of-staff; Dr. Karl Emanuel, secretary-treasurer.

St. Ansgar Hospital, Moorhead.—Dr. H. G. Rice, president; Dr. James Oliver, vice president; Dr. Carl Simison, secretary-treasurer.

St. Joseph's Hospital, Saint Paul—Dr. Joseph M. Ryan, chief-of-staff, Dr. Jerome A. Hilger, vice president; Dr. J. P. Meddelman, secretary.

St. Mary's Hospital, Minneapolis.—Dr. Leo Culligan, chief-of-staff; Dr. Leonard Lang, vice president; Dr. W. L. Herbert, secretary-treasurer.

Fairview Hospital, Minneapolis.—Dr. Myron Lysne, president; Dr. Donald B. Frane, vice president; Dr. C. Gordon Watson, secretary; Dr. Julian V. Petit, treasurer.

* * *

Dedication ceremonies for the new **Renville County Hospital** at Olivia were held on January 21. Principal speaker at the dedication of the forty-bed hospital was Dr. John S. Lundy, head of the section on anesthesiology at the Mayo Clinic, Rochester. Following the ceremonies, conducted tours of the hospital were available to the public.

A tentative medical staff for the hospital was organized at a meeting in Olivia on February 19. Elected as tentative staff officers were Dr. J. A. Cosgriff, Sr., Olivia, chief-of-staff; Dr. C. A. Anderson, Hector, vice chief-of-staff, and Dr. H. P. Hindereker, Bird Island, secretary.

* * *

It was announced on January 4 that the Sisters of St. Francis had decided to proceed with construction of the new **St. Francis Hospital** in Shakopee without waiting for federal grants of funds. The hospital will be financed from pledges amounting to more than $200,000, obtained in a campaign last summer, plus a private loan negotiated by the Sisters. The loan will raise the fund available to $450,000. It was expected that actual construction work on the hospital would begin late in the spring.

* * *

The new superintendent of the **Schmidt Memorial Hospital** in Westbrook is Mrs. Kenneth Clarke, formerely superintendent of the Windom Hospital. She began her new duties on March 6.

* * *

The first patients were admitted to the new **Mount Sinai Hospital** in Minneapolis on February 19. At the start of operation of the 200-bed, four-million-dollar institution, only surgical, medical and pediatric cases were accepted. It was planned that the

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Dr. Hewitt B. Hannah
Dr. Andrew J. Leemhuis.

hospital service and staff would gradually be enlarged as more patients were admitted. Director of the hospital is Dr. Benjamin W. Mandelstam.

* * *

The University of Minnesota Hospitals have the "highest of any known" five-year survival rate for gastric cancer patients, according to a statistical study released on March 6 by three United States Public Health doctors who are medical fellows in surgery at the University.

In the study it was reported that 12.2 per cent of 404 gastric cancer patients who entered the University Hospitals between 1940 and 1945 have survived five years or more.

The report also pointed out that mortality rates in operations removing part of the stomach for gastric cancer have decreased from 41 per cent in 1946 to 11.4 per cent in 1949, with a low of 3.7 per cent in 1948.

BLUE CROSS AND BLUE SHIELD NEWS

Minnesota Medical Service, Inc., on January 1, 1951, revised the code numbers in the "Schedule of Payments" to doctors according to the Blue Cross-Blue Shield Actuarial and Statistical Manual. This change actually represents no deviation in fees paid or services allowed under the former Minnesota Blue Shield Schedule of Payments, but does change from the three-digit code number to a four-digit diagnosis code conforming with the International Morbidity Code. The revised "Schedule of Payments" will be distributed to the medical profession of Minnesota about May 1, 1951. The purpose of this uniform coding is to give Blue Shield plans, on a nationwide basis, accurate statistical data.

Last month this column discussed briefly some aspects of the delay in payment of Blue Shield claims. It may be helpful to the medical profession to outline here the factors which govern the rejection of Blue Shield claims.

Consistently over a period of six months the leading reason for rejection has been presentation of claims for patients who do not hold a Blue Shield contract. Another leading factor is the rejection of claims on which the required ten-month waiting period had not been completed. The third leading reason for disallowance involves cases in which the type of service or care rendered is not within the provisions of the contract.

The patient usually considers his attending physician's opinion as final on questionable cases. Much confusion and ill-will could be eliminated, as well as much time saved in both the physician's and the Blue Shield office, if the following information could be passed on to the patient directly from the doctor's office:

If the patient holds no Blue Shield contract, there is no advantage in filing a Blue Shield claim.

If the Blue Shield contract has not been in effect for ten consecutive months, no allowance can be provided for (1) obstetrical care, (2) tonsillectomies and adenoidectomies performed on minor dependents, and (3) for the treatment of conditions known to exist at the time the

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Blue Shield application is received in the Blue Shield office. To give questionable cases of foreknown conditions every possible consideration, medical history and data is requested from both the subscriber or patient and also from the attending physician, after which cases are given careful and thorough study.

If the services are for the treatment of a medical condition in the home or office, for consultation services either in the hospital or office, or for dual service, no allowance can be made.

This phase of professional-public relations can most effectively be carried out through the physician's office since therein lies the crux of the liaison between Blue Shield and the Blue Shield contract holder.

Total enrollment in Blue Shield as of January 31, 1951, was 419,761 participant subscribers, an increase of 135,874 over the same date of 1950.

There were 3,479 claims paid for January, totaling $123,869.35. Of these claims 514 were for services given in January, 1,579 for services in December and 710 for November, the balance dating from June, 1949, through October, 1950. The total payments of January claims represent 42.6 per cent of cash earned income compared with 55.4 per cent of cash earned income for January, 1950.

Please note that Cedric Adams, news commentator, will make spot announcements regarding our Blue Cross-Blue Shield non-group campaign, beginning April 2, at 6:45 p.m. on Mondays, 7:30 p.m. on Tuesdays, 6:30 p.m. on Wednesdays, 6:00 p.m. on Thursdays, 6:15 p.m. on Fridays, and 7:30 p.m. on Saturdays.

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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

Books Received for Review

THE USE OF PEDICLE FLAPS OF SKIN IN PLASTIC SURGERY OF THE HEAD AND NECK. Gordon B. New, M.D., F.A.C.S., Professor of Plastic Surgery, and John B. Erich, M.D., F.A.C.S., Associate Professor of Plastic Surgery. Both of Graduate School, University of Minnesota, Minneapolis, and Section on Laryngology, Oral and Plastic Surgery, Mayo Clinic, Rochester, Minnesota. 104 pages. Illus. Price $3.00, flexible binding. Springfield, Illinois: Charles C. Thomas, 1950.

UNITED STATES CIVIL DEFENSE. Health Services and Special Weapons Defense. Federal Civil Defense Administration. 260 pages. Illus. Price 60c. Washington, D. C.: United States Government Printing Office, 1950.

PARACELSUS—Magic Into Science. Henry M. Pachter. 360 pages. Illus. Price $4.00, cloth. New York: Henry Schuman, Inc., 1951.

PAUL EHRLICH. Martha Marquardt. With an introduction by Sir Henry Dale. 255 pages. Illus. Price $3.50, cloth. New York: Henry Schuman, Inc., 1951.

PHYSICIANS' AND NURSES' CONCISE MEDICAL ENCYCLOPEDIA. William H. Kupper, M.D. 450 pages. Illus. Price $7.50, cloth. Los Angeles, California: Biblion Press, 1950.

In the preface of this encyclopedia, the author states that it is "an attempt to bridge the gap between medical dictionaries which say too little about too much, and the medical tomes which say too much about too much." That is precisely what the book is.

Brief descriptions are given of diseases and drugs, anatomic structures and physiologic processes, histologic findings and pathologic conditions. The book contains a tremendous amount of information on numerous and widely varied subjects. It does not go into technical detail, yet gives far more information on each subject than is found in the standard medical dictionary.

The illustrations, which are scattered throughout the book, are poorly reproduced and of little value. The book, however, is easily read and is a useful compilation of facts for physicians and nurses.

—J.H.L.

THE PREPARATION OF PHOTOGRAPHIC PRINTS FOR MEDICAL PUBLICATION. Stanley J. McComb, F.B.P.A., Section on Photography, Mayo Clinic, Rochester, Minnesota. 69 pages. Illus. Price $2.00, flexible binding. Springfield, Illinois: Charles C. Thomas, 1950.

In this brief monograph the author offers suggestions for the correction and improvement of many of the defects often found in published medical illustrations.

First he describes the factors to be considered in tak-

ing medical photographs—sharpness of focus, scale-size and position, background, lighting, emphasis, and types of films. In the last one-third of the volume he discusses the making of prints, improving print quality, and trimming and grouping prints for publication.

The author's suggestions are emphasized by good illustrations showing the right and wrong approaches to each problem.

Though not intended to be a comprehensive textbook on medical photography, this monograph should be of value to all persons who do medical writing that is to be illustrated with photographic reproductions. The advice of the author, if followed, should greatly reduce the number of poorly planned and poorly executed photographs that are submitted with papers to medical journals.

—J.H.L.

RENAL DISEASES. By E. T. Bell, M.D., Professor of Pathology, University of Minnesota, Minneapolis. Second edition. 448 pages. 123 illustrations and 4 plates in color; 71 tables and charts. Price, $8.00. Philadelphia: Lea & Febiger, 1950.

The author, in his first edition, presented a concise correlation of the anatomy, the physiology and the pathology of the kidney, with the terminology of clinical medicine. By his analysis of his findings, he succeeded in clarifying many controversial points.

His second edition has incorporated the findings of an additional 18,000 autopsies. He has enlarged several sections to include the more recent advances and concepts.

The orderly style of presentation, the clear self-explanatory tables and the numerous excellent illustrations combine to make this monograph the outstanding work on the kidney.

C.K.W.

THE MASK OF SANITY: Hervey Cleckley, M.D., Professor of Psychiatry and Neurology, University of Georgia School of Medicine, Augusta, Georgia. 2d ed. 569 pages. Price $6.50. St. Louis: C. V. Mosby Co., 1950.

This second edition of Cleckley's well-known book on "psychopathic personality" constitutes an extensive revision and extension of the original work. As before, the book to a considerable degree consists of case histories, which unfortunately are somewhat popularized and seem designed to shock and fascinate more than to elucidate. Particularly lacking in this regard is material

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which would allow one to understand the early psychological factors involved in these cases. The same superficiality of investigation into possible psychodynamics is seen in the author's description of pathogenesis.

Criticisms cannot be made about the thorough coverage of the social implications of this condition, the descriptions of psychopathic variants, and the well thought-out ideas as to treatment and handling.

The book is easy and interesting to read and uses language with care. Its proper place in the literature is certainly not that of a book for popular consumption because of its sensationalist nature, but it is a valuable book for the mature physician and psychiatrist.

Medical Economics

(Continued from Page 356)

community has the responsibility in seeing that a workshop and tools are provided to bring in a first-class doctor to practice the skills he has learned. "Health, as well as education, is a local responsibility," Dr. Murphy said, adding that people should be prepared to put up adequate funds for rural health needs.

Dr. Murphy explained, that in terms of health service, there are three major factors:

1. The quantity and distribution of medical personnel and facilities;
2. The quality of that medical care;
3. The economics of medical service—ability of the population to purchase the medical service.

He said that when one considers the development of any kind of progress in health, all three factors play a role in the problems that presently exist, and those problems are integrated and interrelated to a great extent.

Dr. Murphy warned rural communities that they must remember that they are in competition with urban communities for scarce medical personnel, and that the young physician doesn't like to become medically isolated—"the community must be the magnet for young doctors."

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